

NATIONAL FISHERMAN

NOVEMBER

1958

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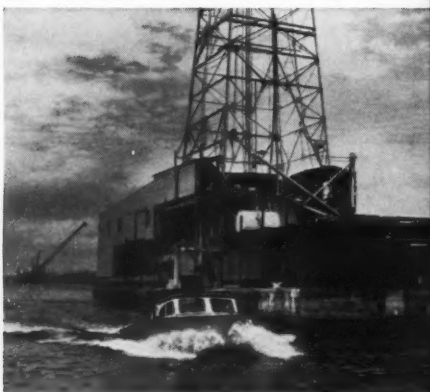
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Choke Valve on a "Christmas Tree" (top fixture on oil well) is checked regularly. Well is located in a dredge canal, serviced by Chrysler powered boats.



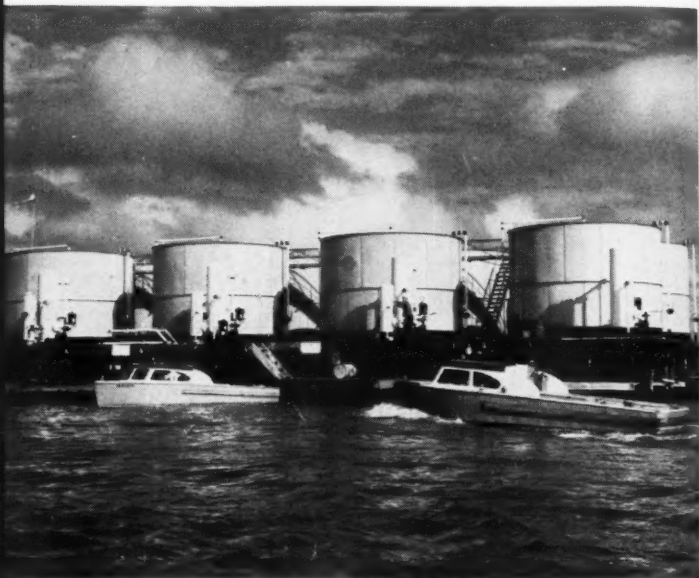
Chrysler powered work boat passes an oil drilling rig in a dredge canal. Boats work 'round the clock, 24 hours a day.



Chrysler Crown 125 H.P. ENGINES power 14 work boats in Richardson & Bass fleet. Howard Hingle, company mechanic, changes engine oil.

CHRYSLER powered boats work 'round the clock in Coastal Oil Fields

Tank Battery to which oil flows from oil wells for storage. Tenders—using Chrysler powered boats—check contents at regular intervals.



In one 15 square mile area in the vicinity of Pointe-a-la-Hache, Louisiana, Richardson & Bass works 141 oil wells and 22 accompanying storage tank batteries. The land in this area is so low and marshy that roads are impractical. Canals are dredged, and the wells and storage tanks are tended and maintained by boat.

Richardson & Bass operates a fleet of fourteen work boats—all powered by 125 h.p. Chrysler Crown engines. Six of the boats are operated 'round the clock, 24 hours a day by switchers and roustabouts; the remaining eight boats work 8-hour shifts.

Proven economy and dependability—under difficult and continuous operating conditions—was the main reason for the company's conversion to Chrysler power exclusively.

What's more, because of Chrysler's performance record Richardson & Bass has decided that all new boats—as well as all replacements—will be Chrysler powered.

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The Lookout

World Catch Increasing

The United States, including Alaska, retained second place among the world's fishing nations in 1957 with a catch of 2,741,000 tons, although China (mainland) and Russia began to close the gap. This situation is revealed in the latest FAO Yearbook of Fishery Statistics, just published by the Food and Agriculture Organization.

The latest world catch figure is 29,960,000 tons, showing an increase of nearly 50 percent over the last full fishing year before World War II, in 1938. Since 1947, there has been a steady yearly increase, which during the past five years has been 5 percent annually.

Japan not only continues to be the world's foremost fishing country, she is pulling even further ahead. In 1957, Japan caught 5,399,000 metric tons, just over 18 percent of the total world catch. Before the war, Japan caught 3,562,000 tons.

Japanese fishing boats are operating from the Antarctic to the North Pacific and the coast of Alaska. Japanese fishing companies are interested in the development of fisheries in Argentina, Chile, Brazil, Cuba, as well as in Ceylon and other Asian countries. They have fleets off the coast of West Africa and are further exploiting the waters of Japan itself.

The most significant increases by continents since 1938 are those of Africa—520,000 to 1,860,000 tons; Asia—9,360,000 to 12,880,000; Europe—5,590,000 to 7,640,000; and USSR—1,550,000 to 2,540,000 tons.

According to the FAO Yearbook, the following seven countries caught more than a million tons of fish in 1957: Japan, United States, China (mainland), USSR, Norway, India, and United Kingdom. Canada, which caught over a million tons in 1956, barely missed in 1957. India which topped the million mark for the first time in 1956, moved up two places in 1957.

Of the 1953-57 average world catch, six countries—Japan, United States, China, USSR, Norway and United Kingdom—caught 55 percent. The 40 leading countries account for 95 percent of the total.

The year book shows that 30 countries in 1948 froze 553,000 tons of fish, while in 1957 they froze 1,415,000 tons—nearly three times as much. There has been a substantial increase in the amount of dried and salted herring, sardines, and anchovies. The production rose from 644,000 tons in 1948 to 1,057,000 in 1957, largely due to the activities of Russia. The Russians canned 229,000 tons of fish products in 1957 compared to 46,000 tons in 1946.

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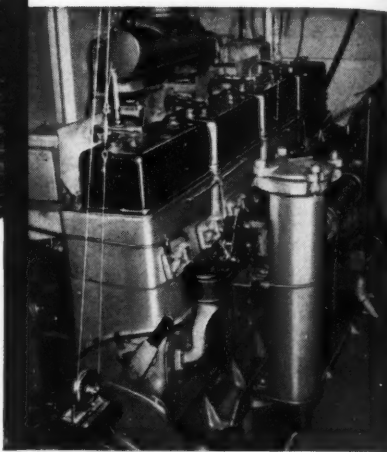
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Allis-Chalmers
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... put the first big halibut catch of the season on the Seattle market, which paid off well in the plush market that the first fares of the season command.

The new-found speed for the 30-year-old *Pacific* comes easily with the Allis-Chalmers 2505 diesel recently installed. On trial runs and on the trip from the Bering Sea, she made 11 knots — an easy 2 knots better than ever before.

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The *Pacific* is 75 ft over-all — 65 gross tons, 44 net — is out of Seattle, fishes Alaskan waters. Her Allis-Chalmers DCMR2505 marine diesel has a rated maximum of 388 hp at 1300 rpm, turns a 5-bladed 56 x 49 propeller through a 2.88:1 reduction gear.

ALLIS-CHALMERS



BM-30

Dredge tender has a 3-inch Tempaloy Shaft for dependable power in rugged service

The new diesel-powered work boat, "Captain Leffie," built by Gladding-Hearn Shipbuilding Corp., Somerset, Mass., will tend dredges and double as a crew boat on general marine construction throughout the Northeast. To meet the extra hazards she'll face in this service, she has a 3-inch Tempaloy Shaft, Anaconda's nickel-aluminum bronze shafting that provides the extra strength and toughness needed for demands like this.



TEMPALOY®-917, nickel-aluminum bronze shafting, was developed by The American Brass Company for use requiring extra high strength and lighter weight. Repowering with higher horsepower engines often means replacing original shafting, too.

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THE "CAPTAIN LEFFIE," built by Gladding-Hearn Shipbuilding Corp., Somerset, Mass., is 44 feet long, with a beam of 14 feet. Power from a 150-hp diesel is transmitted by its Tempaloy shaft to a 3-bladed propeller.

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NATIONAL FISHERMAN - NOVEMBER, 1958

► Chlorinated Water

The value of chlorinated sea-water in preserving the quality of fish aboard fishing craft has been demonstrated by a series of tests in the North Atlantic fishery, the Department of the Interior reported recently.

According to Arnie J. Suomela, Commissioner of Fish and Wildlife, the experiments were conducted by the Bureau of Commercial Fisheries, U. S. Fish and Wildlife Service, on a cooperating fishing vessel. Equipment fabricated by the Bureau's laboratory in Boston was used.

It was found that fish rinsed in a spray of chlorinated sea-water immediately after evisceration, and transported in holds which had been thoroughly washed by a similar solution, were cleaner and fresher than fish from trawlers using ordinary sea-water.

According to Bureau members the equipment is inexpensive and easy to install. It consists of a hypochlorinator metering pump and an electric motor. The chlorinated water from this assembly can readily be introduced into the existing wash down system of the vessel.

The chlorine is provided by an 8 percent solution of sodium hypochlorite which is metered into the system at the rate of 50-80 parts per million parts water for washing holds and pen boards. By regulating the metering to a solution of 10-20 parts per million the product can be used in rinsing the eviscerated fish.

► Aluminum Sardine Cans

Spurred by favorable reports of nationwide surveys, a San Pedro, California cannery has introduced a special sardine pack in new aluminum cans, the first time the metal has been used in food packaging.

The new cans will be used for the Franco-Italian Packing Company of Terminal Island which at the same time is introducing a new-sized can.

The idea for the new can was brought to life by research of the cannery which indicated families would find a smaller size more economical. The steel tin formerly used contained 8½ ounces.

Surveys further showed that considerable savings could be effected in shipping and handling costs if a lighter material was used.

The firm went to American Can Company, Wilmington, Cal. whose designers came up with the aluminum can that would be easier to open, lighter in weight, and equal in quality to tinplate containers in storage abilities.

The new can will contain 6½ ounces, is .012 inch in thickness, is 1½" high by 3¼" wide by 4¾" long. The can is 'drawn' on a diepress from a single aluminum blank with the tops being made separately.

FISHERY PROGRESS

► Loan and Grant Proposal

Senator John F. Kennedy said recently that he will urge the passage in the next Congress of a twenty-five million dollar loan and grant program for the revitalization of the fishing industry.

The senator made the statement in a speech prepared for delivery in New Bedford, Massachusetts. He said, "The fishing industry which for so long was the cornerstone of New England's prosperity is one of our most important resources."

"In the next Congress I intend to press for passage of a bill which will complete the job begun by the Saltonstall-Kennedy Act. It should place the fishing industry on an equal basis with other segments of our economy assisted by the Federal Government and restore this great national resource to its proper position of importance.

"The new bill which is similar to one introduced by Saltonstall and (Kennedy) in the last Congress would appropriate ten million dollars which could be used as a revolving loan fund to help the industry improve its safety measures and modernize its equipment."

Another appropriation would set five million dollars for loans to processors of fish and fish products for the improvement and modernization of their plants.

Authorization of an appropriation of ten million dollars would be made to improve American shipyards to construct fishing vessels at a price which is competitive with that of foreign shipyards.

► Unsafe Practices List

The Bureau of Commercial Fisheries' New England safety program has prepared a list of practices found on large and medium otter trawlers. The list is "far from complete" but elimination of these hazards and practices could contribute towards reducing the present accident rate, and save both lives and money.

While crossing over the trawl wire during setting and hauling the net, a slip could throw a man onto the wire and through the bollard. This act should be outlawed and guard rails made mandatory equipment.

Men stand in front of trawling winch and attempt to evenly spool incoming wire onto the winch drum by means of heavy steel bars. A steering arrangement operated from behind the winch should also be mandatory.

The practice of the winch operator leaving his post while the trawl wire

is being retrieved could result in serious accidents to personnel and equipment due to delay in reaching the winch-stop control.

During operations, trawling wires are held on the block by a hinged steel section secured by a heavy locking pin. Often a short wrench or spanner is used to remove the pin before hauling the net. The violent spring of the released block may strike the tool or hand of the operator. A long heavy bar should be provided and used.

Use of boxes, wooden rollers, etc., under the forward gallows to reach fishing gear is common. Secure footing can be assured by installing a steel plate of sufficient height.

► Oyster Standards

A steering Committee composed of a representative from each of the three cooperating organizations, Oyster Institute of North America, U. S. Food and Drug Administration, and the U. S. Bureau of Commercial Fisheries, has made progress toward establishing the basis for a joint study for future standards of identity of shucked oysters.

A number of meetings have been held to select a site for the work and to obtain a Director for the program. Efforts have also been made to formulate the aims of the investigations and to outline, where possible, specific projects.

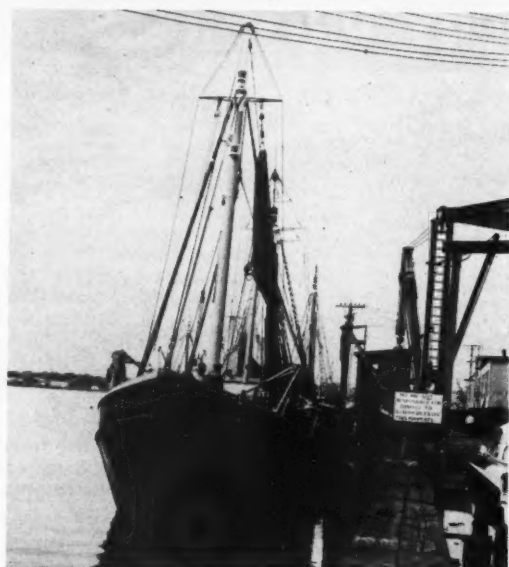
It was agreed that there shall be three research workers, each of the organizations responsible for financing one.

Laboratory work will be centered at the Virginia Fisheries Laboratory, Gloucester Point, Va. Excellent facilities are being made available. There are many oyster plants within a 25 mile radius and oyster beds in the nearby York River.

Studies of washing, blowing etc. will be made in plants in various parts of Chesapeake Bay. The industry has agreed to supply one man on the research team, plant space for tests, and oysters on which the test can be made both in the plant and in the laboratory.

► Willier Heads Oyster Research

Dr. Benjamin H. Willier, recently retired head of the Biology Department of Johns Hopkins University, has been appointed to direct the Joint Standards Research Program sponsored by the Food and Drug Administration, Bureau of Commercial Fisheries, and the Oyster Institute of North America.



FAST DOCKSIDE SERVICE

Mr. Arnt Jensen, skipper of the *North Cape*, a dragger out of Cape May, New Jersey, recently purchased a Caterpillar D375 Marine Engine from PEMCO. If you ask Capt. Jensen why he selected Cat to repower the *North Cape*, he'll give you two very important reasons:

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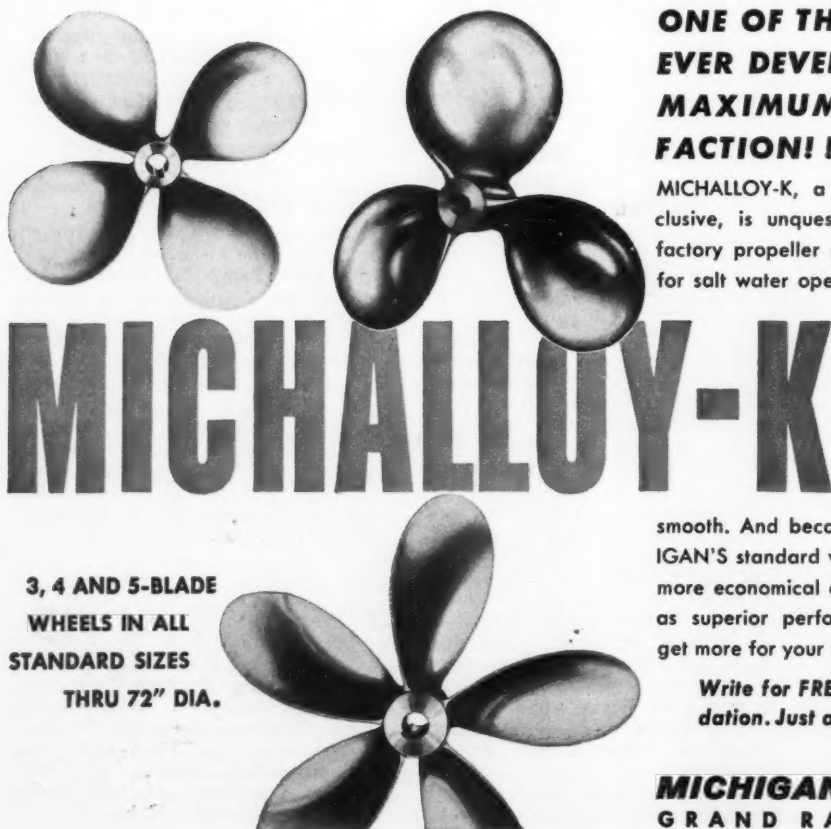
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Tuna Industry Evaluated by Gulf States

Marine Fisheries Commission reports on present and future of tuna fishery, clam industry, and estuarine program at ninth annual meeting

THE Gulf States Marine Fisheries Commission heard favorable reports on the future of tuna fishing in the Gulf of Mexico recently at its ninth annual meeting in Biloxi, Mississippi. Members meeting at the Buena Vista Hotel, October 16 and 17, listened to the arguments for excellent possibilities in that industry as well as an account of the potentialities of a clam industry in the Gulf area. The Estuarine Technical Coordinating Committee presented a report on its meeting held just prior to the Commission convention.

The Commission elected Howard Dedsen, director of the Texas Conservation Commission as chairman to succeed Dr. W. C. Holmes of Foley, Alabama. Hermes Gautier of Pascagoula, Miss. was elected vice-chairman.

At the opening session of the meeting, Cecil Drake of Marine Sales and Services of Pascagoula told the Southern representatives that "the Gulf coast area is possibly the most attractive place in the United States to can tuna." He pointed out the facts that a favorable labor supply was available, freight savings could be affected over most of the shipments as compared to those made from the West coast and tuna is available to the cannery at lower prices than on the West coast. "With reference to the waters we are most interested in—those adjoining the Gulf states—there is no doubt that enough production of tuna can be made to support fair sized canning operations."

Exploratory work done by the Oregon, U. S. Fish & Wildlife Service boat over the past several years have indicated that there are tuna throughout the Gulf of Mexico but they were most plentiful in the northern and southwestern portions. Mr. Drake said that one boat the *Milmar*, delivered 40 tons of tuna to the Bluff Creek Canning Co. at Vancleave, Miss., in a four-week period, but the actual fishing time was only two weeks. Another boat, *Alfhilda*, has delivered 149½ tons to this cannery from April 20 to September 31 and during this period had caught seven tons of tuna in one day.

Also appearing on the first day's program was the man who canned the first tuna caught in the Gulf of Mexico, Tom Murphy of the Bluff Creek Canning Co. His talk was on fishery products used for cat food and poultry food. He said that the croaker in the Gulf contains about 17 percent protein plus many other vitamins and minerals as well as the unknown growth factors found in fish. Comparing the cost of production with other feed industries he said there is a vast difference. Fish for cat food is being delivered to the factory for less than two cents a pound and the supply of these fish in the Gulf is practically unlimited. He continued that cat food produced from these Gulf fishes had been tested and that generations of cats which had lived solely on this cat food have thrived. He said that about one and a half years ago he pioneered a plant in Empire, La. for the manufacture of fish meal for poultry. Now the plant is using eight tons of raw fish daily and the feed is preferred by some of the largest manufacturers in the poultry business.

Phillip A. Butler, Bureau of Commercial Fisheries, Pensacola, Fla., told of the potentials of the clam industry on the Gulf coast, saying that it is possible to raise seeds in the laboratory for clam production and clams grow much faster in the Gulf than along the New England coast. Combining seed clams with natural off-shore reefs that have been found off the Florida peninsula recently should produce a substantial yield if properly controlled, he predicted. However, he pointed out that clams would be as susceptible as oysters to natural predators.



The Gulf States Marine Fisheries Commission elected Howard Dedsen, center, director Texas Conservation Commission, Austin, Tex. to succeed Dr. W. C. Holmes, left, Foley, Ala., as chairman. Hermes Gautier, right, of Pascagoula, Miss. is the new vice-chairman.

Encouraging tests have been run on canning of several species of sardine-like and anchovy types of fish caught in Gulf waters, Harvey R. Bullis, Jr., Bureau of Commercial Fisheries at Pascagoula, reported. Experimental fishing of this type will be conducted for the next two years by his department. One of the serious difficulties encountered lies in the fact that the schools of fish are mixed; however, he stated, the configuration of the school approaches that of the dominant species.

A discussion was held by the representatives of the five Gulf states pertaining to the capturing and/or landing of white shrimp through uniform state laws during spawning season in the open Gulf of Mexico between St. Marks, Fla. and the Texas-Mexican boundary. The discussion concerned a suggestion of the commission eight or nine years ago that biologists from the various states study plans on shrimping. Members of the panel agreed that the problem could not be solved by a panel and they agreed that the laws regulating shrimping should be set up by individual states because of the deviations of shrimp activity in the different states.

Dr. Lyle S. St. Amant, the Louisiana Wildlife and Fisheries Commission, New Orleans, in a report on the diversion of fresh water into Louisiana coastal areas, said that construction of fresh water openings should be approved in the near future. A tentative plan for allowing fresh water to reach the marshes has been approved by the Corps of U. S. Engineers, he said, and it will cost \$8,000,000.

Walter A. Grish, Bureau of Sport Fisheries and Wildlife, Atlanta, Ga., in a report on the Mississippi River-Gulf Outlet Project said the ship canal from New Orleans, going southwest will shorten the distance from 113 to 70 miles and will cost \$92,000,000.

Also appearing on the two-day program were Dr. George A. Rounsefell, Bureau of Commercial Fisheries, Galveston, Texas, who said that a publication on white shrimp has been compiled; Dr. Clarence P. Idyll, The Marine Laboratory, University of Miami, Fla., reported shrimp statistics, saying these taken daily can give data on effects by storms, the moon and a dozen other things; Edwin S. Iverson, the Marine Laboratory, University of

(Continued on page 36)



Improved Boat Design Would Raise Operating Efficiency

Changes would save time, money, and manpower to produce a more economical fishery

Jan-Olof Traung, Chief Naval Architect
Fisheries Division, Food and Agriculture Organization (FAO) Rome, Italy.

MOST fishing vessels consume about 30 per cent more fuel than is necessary in calm water conditions and about 60 per cent more than is necessary in rough water conditions, according to Jan-Olof Traung, Chief Naval Architect, Fisheries Division, Food and Agriculture Organization (FAO), Rome, Italy.

Mr. Traung is a recognized authority on the design and construction of fishing boats, and his statement is based on scientific tests and experiments which he and other naval architects in several countries have carried out. The method used is to make models of typical present-day fishing vessels and models of fishing vessels of drastically modified designs and to test them in molding testing tanks. By using models instead of full-scale boats, the experts are able to test hull shapes that they otherwise would never dare build.

The results of such tests have shown that fishing boats with a high prismatic coefficient consume much more fuel than fishing boats with a low prismatic coefficient.

Put in non-technical terms, a boat with a low prismatic coefficient has a hull designed to concentrate the main volume of water displacement around midships, whereas a boat with a high prismatic coefficient has a hull designed to carry the displacement of water more evenly along its whole length.

Boat Owners Unaware of Research Findings

The trend in fishing boat design, so far as it has been noticeable in western countries, has been to concentrate on boats with high prismatic coefficients. The reason for this is probably the fact that most fishing boats of up to 100 ft. in length have been built by rule of thumb. Most owners are still unaware of the research which has taken place in recent years in fishing boat design and local fisheries departments do little to spread such knowledge. Owners have certainly not realized that such substantial savings in fuel can be effected through a change in design, although it could have a most important impact on the economy of the fishing industry because the cost of fuel makes up some 30 to 40 per cent of the operational costs of fishing boats.

While, therefore, the introduction of the low prismatic type of fishing boat will take place because of these economic considerations, such a change must be gradual as vast sums of money are invested in the present-day fishing fleets, probably 50 per cent of the total investment in the fishing industry. For instance, there are more than 250,000 registered fishing boats in the fleets of the leading fishing nations in Europe—Belgium, Denmark, France, Germany, Iceland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, and U. K.—so that the investment in European boats alone runs into hundreds of millions of pounds.

Discussing this question of the low prismatic coefficient, Mr. Traung said in an interview in FAO headquarters:

"Most fishing fleets consist of small mechanized vessels. In fact, one could say that more than 80 per cent of fishing boats range from 30 to 100 ft. The fuel economy which

could be effected by a change in hull design of these boats would therefore have a significant influence on the profits of the fishing industry."

One reason for lack of knowledge of the effects of hull shape on the economy of fishing boat operation is that professors of naval architecture have only recently included the design of fishing boats in their teaching. It will take some time for this teaching to become effective generally in a practical sense.

Another difficulty is that most boat builders and fishermen believe their fishing boats to be so good as to be beyond improvement. They do not believe that the cost of employing a naval architect to prepare specific plans would pay dividends in lower operating cost.

Best Fishing Boats in the World Attitude

"If you journey around the world as I have done in the last few years, you will realize how true this is," said Mr. Traung. "If you go to Sweden, or Germany, or France, or Britain, you will find that the boat builders and owners think their vessels are the best in the world. Then, if you go to Ceylon, or India, or Thailand, or Indonesia, or Pakistan, you will find the boat builders there think their fishing vessels are the best in the world."

"But I have yet to find a fishing boat which cannot be

(Continued on page 31)



Fishermen at work on deck showing evidence of the difficult working conditions faced by most crews.

Fish Farms May Bolster Washington Salmon Runs

Used successfully in Europe and Asia,
rearing method is less expensive and
frees fish hatcheries for incubation

MILO Moore, Washington fisheries director, is counting on fish farms to help rebuild the state's salmon runs. During the operation of such farms, infant salmon are transferred from hatcheries to fresh-water ponds and salt-water lagoons. There they feed on the natural food supply until they are ready to go to sea.

If the food supply is not sufficient the fish farmer, like the vegetable farmer, applies fertilizer. If the nutrients in the water are not in proper balance, the farmer adds minerals until the diet is satisfactory. There have been many doubters who question whether Moore's plan will be successful. In answer to their fears, he explains that first of all, fish farming is not a new concept—except in this part of the world.

Fish farming he says, has been highly successful for hundreds of years in countries where land shortages and hunger have forced people to look to the water for food production. There are about 40 kind of fish being cultivated around the world, the leading producers of fish through this system being Japan, Red China, Indonesia, India, the Philippines, Germany, Poland, and Czechoslovakia.

"Fish farming is not a gamble," Moore declares. "It is just a new idea in this country, an idea that has to be sold by doing. Salmon runs are . . . losing . . . to dams, dikes, and irrigation. We have to make the best use of the waters we have. The soil farmer has made changes in his land to grow the crops he wants. He uses fertilizer and hybridization. Why can't we do this with fish?" Several food supplements can be used at reasonable cost. To date, the menu has included crab meal and ground oyster shells, which are high in calcium. The department has obtained some crab offal at no cost. Other fertilizers cost around \$15 to \$20 a ton.

Moore's staff thinks fish-farm rearing will cost only one tenth as much as hatchery rearing, even with the purchase of foods and fertilizers. The department estimates that it costs about a dollar a pound to raise salmon to the size that will give the best chance for survival. Thirty five cents of that dollar is for food, the rest goes for labor, utilities, and other hatchery overhead.

"So the less time you hold fish in a hatchery, the more money you save," Moore said. "What we do is give the fish a start at the hatchery then put them in a fish farm and let nature grow them for us at very little cost. A standard concrete hatchery pond of 1/25th of an acre costs between \$5,000 and \$6,000. One typical fish farm, Johnson's Slough in the Willapa area, was put into production for \$4,900.

"Fish farming is an extension of the hatchery program. Our hatcheries can incubate nearly twice as many fish as they can rear. Fish farms expand those rearing areas. The state has 19 fresh-water hatcheries and two salt-water hatchery and research stations. Another hatchery is under construction on the Kalama River. In 1957, more than 43,000,000 hatchery reared salmon were planted in Washington waters. This was the largest number ever released in a single year by any state fish agency.

Washington has seven salmon fish farms, totaling 1,000 acres, in production. The total amount spent to date is \$24,870. This includes \$5,000 for site purchases, \$17,750 in construction costs, and \$1,125 to eliminate predators and \$985 for food and fertilizer. The farms reared and released 3,878,000 salmon in the first half of this year. All but one of the farms are fresh-water operations but sev-



THE 57' "WONDERLAND" used for salmon seining by Matt Marinovich, Everett, Wash. The boat is powered with a 110 hp. Atlas engine and uses RPM Delo lubricating oil. She has in her equipment Exide batteries, Plymouth rope, Raytheon Fathometer, and Spongex floats.

eral more salt-water projects are in the planning stage. Thirty five more fish farming sites are under study or almost ready for planting.

Considerable attention is being focused on the one salt-water fish farm, Kennedy's Lagoon in Penn Cove near Coupeville, Whidby Island. The twelve acre estuary was poisoned to destroy the predators and then planted in March with 450,000 chum and 300,000 pink-salmon fry. The fry were moved into Kennedy's Lagoon directly from fresh water. However, not all species can adapt to salt-water so quickly.

During their 100-day stay in the lagoon, the salmon grew from a size range of 1 to 1½ inches to an average of between 3 and 4 inches. "This was done with almost no feeding on our part. They received natural foods from the incoming tides," said R. T. Pressey, chief biologist of the Washington Fisheries Department. "We assume most of these salmon are far out in the ocean by now."

The pinks will return to Kennedy's Lagoon in the fall of 1959, the department hopes. The chums will begin showing as 3-year olds in the fall of 1960, but the largest group of chums, the 4-year olds, will return in 1961. The department will be waiting for the homecoming salmon. Plans are to trap them at the mouth of the lagoon, harvest the eggs and begin the cycle all over again.

After the chums and pinks were released, fisheries crews planted 50,000 chinooks and 50,000 silvers in the lagoon. So far they seem to be doing fine, which is regarded as an encouraging sign as the chinooks, for experimental purposes were transferred from fresh-water directly to salt-water without any gradual transition. The silvers were acclimated before entering the fish farm.

When the silvers and chinooks are freed late this fall, the lagoon will be poisoned again to eliminate any predators that have sneaked in. Some predators including bullheads and sticklebacks entered when the gates were lifted to liberate the first group of pink fingerlings and chum. Improved gates will prevent that from happening in the future.

The channel between the lagoon and Puget Sound is a culvert under the highway. A regulator on the lagoon

(Continued on page 36)

NORTH ATLANTIC

Maine Fisheries Commissioner Proposes Marketing Program

Ronald W. Green, Sea & Shore Fisheries Commissioner last month proposed a fisheries marketing program costing \$50,000 a year for the next two years. These funds would be used to introduce a new program which has been recommended frequently in the past ten years by all concerned with the Maine fishing industry.

Green would use \$10,000 the first year for a comprehensive survey of the present lobster market by some nationally recognized agency, to determine how acceptance and merchandising of lobsters can be increased. Another \$10,000 would be used in the second year for a similar survey of other fisheries products. Green would spend \$10,000 for a marketing specialist who would travel throughout the country promoting lobsters and other Maine seafood products.

He would provide \$30,000 each year, to be matched by the fishing industry, for a promotional and marketing program designed to step up consumption of seafood products.

Maine Sardines Outsell Imported Ones

Maine sardines last month were outselling imported brands by a ratio of 8 cans to 2 and the California type by 8 cans to 1 in the U. S. market. Further data revealed that Maine has 68 per cent of the market in can volume with imported brands and California 32 percent of the business.

Maine's sardine industry's sales have been showing a steady gain for the past twelve months and much of this is believed due to the mandatory State grading program which went into effect at the start of the present season. Voluntary grading has been in operation for the previous three years and it is believed that this has also been a major factor.

Maine Sardine Season Betters Prediction

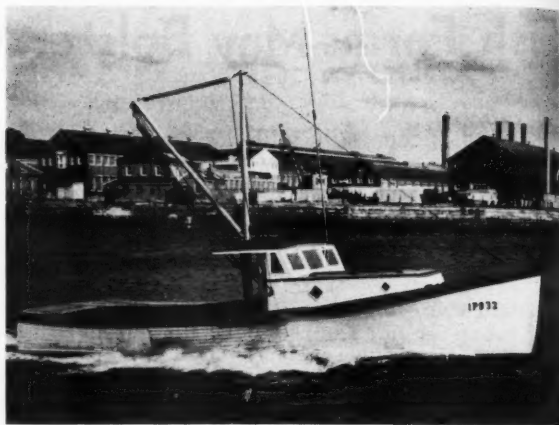
Sardine packers in the greater Portland area late last month expected to close the packing season in late November with a considerably better record for the year than anticipated. The first two weeks in October saw large seines of herring caught and most plants packed more steadily at that time than they did during August and September.

The size of herring last month was also better, with most of the fish eight to ten inches in length, considered ideal for canning. Trident, Peacock and Seaboard Packing Co. and Underwood in Yarmouth have been operating almost daily since early October, and some plant managers expected to be operating until Thanksgiving.

Maine Seafood Publicity Items Popular

Over one quarter of a million individual items designed to promote the state's fishing industry have been distributed by the Maine Department of Sea and Shore Fisheries during the past year, according to Commissioner Ronald W. Green.

Some 276,000 promotional booklets, lobster pins and bibs and Maine sea chests have been given away or sold. The bulk of these items has gone to national conventions held in such widely scattered cities as Palm Beach, Chicago, Atlantic City and Los Angeles, and to various shows and expositions.



Forty-foot lobster boat "Dodo" owned by William L. Crawford of Kittery, Maine has a Cummins JN-6-M Diesel engine with 2:1 reduction gear which turns a 5-blade, 24 x 19 wheel.

Over 126,000 copies of a booklet "How to Eat Maine Lobster" were made available to the public. Some 43,000 lobster pins have been sent out from the Department's Augusta office in the past year.

Other items distributed include approximately 80,000 copies of "How to Prepare Maine Lobster"; 16,000 lobster bibs; 5,000 copies of "State of Maine's Best Seafood Recipes"; 5,000 copies of "Commercial Fisheries of Maine"; and close to 600 sea chests. A new publication "Maine's King Lobster" is proving very popular.

By far the most expensive single item distributed by the Department is the trim wooden sea chest with its rope handles and salty gift certificate signed by Maine's Governor and the Sea & Shore Fisheries Commissioner. Each chest contains an assortment of canned seafood delicacies processed within the state.

Rockland Plant to Build Addition

A permit for F. J. O'Hara & Sons, Inc., Rockland, Me., to construct a one story frame enclosure at their Tillson Ave. fisheries plant was approved last month. The new enclosure will be used to house machinery, and will be part of the firm's expansion program which is expected to increase production by 50 per cent and provide considerable employment opportunities.

New Jersey Bay Oysters Inspected by Legislators

Commissioner of Conservation and Economic Development, Salvatore Bontempo, together with legislators from the three southern counties made an inspection trip of the Delaware bay oyster grounds recently.

Assemblyman Robert E. Kay of Cape May County reported from the trip that oyster supply in the Maurice River cove area has been depleted for this winter and that the oyster industry is hampered by the lack of marketable oysters.

Key said a cause yet unknown to either the research laboratory or the oystermen themselves, has apparently killed the oysters on the oyster beds in Delaware Bay. Sample dredging produced a handful of marketable oysters.

The oystermen are seeking some form of assistance from the state to help determine the cause of the condition and some form of help which will provide employment for hundreds of their people who presently have no occupation.

Massachusetts Ports Lead Three Phases of Industry

Gloucester ranks first in the quantity of fish landed, due largely to the annual catch of approximately 125 million pounds of ocean perch and whiting. Boston is the principal haddock port in the world, with a catch totaling over 100 million pounds annually. New Bedford is the chief scallop port, producing over one-half the world's supply of sea scallops.

Commissioner John T. Burke of the Mass. Department of Commerce last month called upon every housewife in the Commonwealth to aid the state's oldest industry—commercial fishing—by increasing their purchases of seafood products.

Burke said that the commercial fishing industry in Massachusetts is responsible for the distribution of almost \$100,000,000 annually within the Commonwealth.

Landings for the first six months of 1958 indicate that Massachusetts will supply more than 11 per cent of the total landings taken by Alaskan and United States fisheries combined.

Massachusetts fish industries will exceed by more than 60 per cent the total Alaskan fishing production this year, according to present indications.

For the first six months of 1958, 72 million pounds of fish were landed at Gloucester; 71.8 million at Boston and 58 million at New Bedford.

Massachusetts Man Suggests State-Sponsored Boat Loans

Elmer C. Nelson of Mendon, Republican candidate for lieutenant governor has suggested state-sponsored loans for construction of new commercial fishing vessels of a size able to compete with foreign craft.

Nelson said he visualized a boat that could hold perhaps as much as one half million pounds; and a boat that could make at least 12 to 15 miles an hour instead of the current 9 to 10 mile speed.

Nelson recently talked with Capt. Sam J. Linquata, skipper of the whiting dragger *Natale III* at which time Capt. Linquata stated that such a program might help the industry get on its feet.

Nantucket Dragger Repowering

The dragger *Robert Joseph*, formerly known as the *Victor Johnson*, now owned and skippered by John MacDonald of Nantucket, Mass., is being repowered with a new Caterpillar engine, Model D 342 turbo charged. Normand C. Hudon of Pier 4, New Bedford and the R. A. Mitchell Co. of Fairhaven are doing the work.

The engine has a rating of 200 hp. at 1200 rpm. It is fitted with a Twin Disc MG200, 2.96:1 and has a 32-volt electric starting system. Her auxiliary is an 8 hp. Lister and her generator is a 3 kw. Fairbanks-Morse.

New Bedford Vessels Land Largest Catch in Years

A record catch of 665,000 pounds of fish and sea scallops was landed in New Bedford October 11. According to figures compiled by the New Bedford office of the Fish & Wildlife Service, the catch was the largest since September 1949.

Fillet and scallop plants worked well into the evening to unload the vessels. Of all the species, yellowtail continued to be the heaviest, with 300,000 pounds.

During the week ending October 11 about 441,000 pounds of sea scallops were brought in by 43 scallopers and prices kept up well despite heavy landings.

Many of the scallopers are converting to dragging including the *Carol* and *Estelle*, *Sharon Louise*, *Sea Ranger*,



Owned by James Hubert Lawrence, New London, Conn., the 60' fishing boat "Mandalay" is powered with a 160 hp. Waukesha engine with 3:1 Snow-Nabstedt reduction gear. Other equipment is Linen Thread nets, Hathaway hoist.

Porpoise, *Louis Thebaud*, *Catherine C.*, *Noreen* and *Nellie*.

Four vessels of the fleet are jet quahogging out of New Bedford. The *Sunapee*, *Barbara*, *Santa Cruz* and *Martha Murley* are working Nantucket Sound.

New Bedford Fleet is Not Affected by New Regulations

Changes in the regulations affecting the New England cod and haddock trawl fishery due to come about November 15 will have little effect on vessels in the New Bedford fishing fleet.

One of the main differences in regulations applies to the before-use certification of cod ends and minimum mesh measurements.

These new measurements will not affect the local fleet much, since the fleet have been observing the 4½-inch minimum long before the regulations were ever made.

Gloucester Dragger Goes Down

The 107-ft. Gloucester fishing dragger *Evelyn C. Brown* burned and sank on Grand Bank on October 20. All 10 crewmen were rescued by the dragger *Flow*, after being adrift in dories for thirty hours. The men were reported near exhaustion from rowing, and exposure to near-freezing weather.

The *Evelyn C. Brown*, built at South Bristol, Me. was launched in 1954, for Louis Brown, Jr. and was skippered by Capt. Francis J. LaRose. The vessel had a 425 hp. engine and could carry over 300,000 pounds of ocean perch.

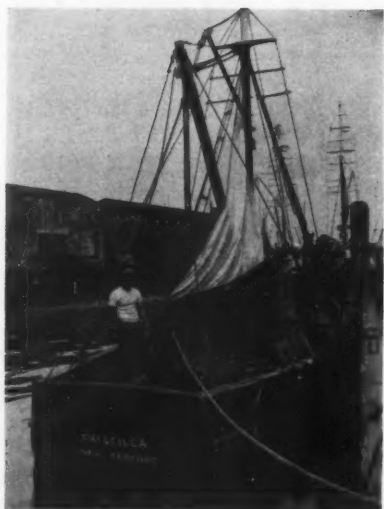
Two Gloucester Fishermen Land 85 Tuna in One Day

Johnny and Bill Stanwood, commercial tuna fishermen out of Gloucester caught 85 fish, totaling about 9,000 pounds on October 2. They received 5 cents a pound, round, for their catch, stocking approximately \$450 for their day's work.

They operate the 40-ft. vessel *Here We Go* and a few days earlier in the season they landed 71 fish for a 7,500-pound trip. The fish were caught on the northern end of Middle Bank, a spot teeming with fish for two months.

New York Fishing Conditions

Vessel landings at New York City's Fulton Fish Market for September consisted mostly of sea scallops. Ten vessels making 18 trip landed 196,800 pounds of scallop meats, together with a catch of 18,200 pounds of finfish and lobsters. One trawler, the *Dolphin*, out of New Jersey, made



Capt. Frank Freitas aboard his 34' dragger "Pricilla" at New Bedford, Mass. She is equipped with 55 hp. General Motors 2-71 Diesel, RCA Radiomarine telephone and Raytheon depth sounder.

3 trips into the market with an estimated 60,000 pounds of scup, butterfish and mixed finfish.

Scallop landings at Greenport were light with a couple of trips landed. The Greenport scallop boats were not over active in the New York area during September, most of them fishing off Virginia with landings being reported there.

Otter trawl landings were light for September throughout most of the New York area. Fluke improved very much with the draggers as the fish moved out from in-shore waters.

Hard clams remained steady, with chowders a little stronger than during August. Oyster production increased as the fall and winter season opened.

The Bay scallop season opened the 16th of September and scallops were plentiful in Peconic and adjoining bays, and of good size in deeper waters.

Long Island Menhaden Boats Hauled Out

Four of the fleet of menhaden fishing boats, owned by the Smith Meal Co., which have been engaged in menhaden fishing since last June, have been laid up for the winter months at Brigham's Shipyard, Inc., Greenport, N. Y. They are the A. Brook Taylor, Pocahontas, Wilbert A. Edwards and Edward J. McKeever.

The dragger Edith Hudgins owned by Norman Edwards of Amagansett has been hauled out at the yard for repairs.

Delaware River Dam Opposed

David H. Wallace, executive director of the Oyster Institute spoke last month at a hearing before the District Engineers in Wilmington, Del. in opposition to a proposal to construct a dam across the Delaware River in the vicinity of New Castle, Del.

Mr. Wallace stated that the oyster business is very vulnerable to modification of estuarine environments, whether it be from domestic or industrial pollution, damming of rivers in tidal areas, or other extensive changes, and that the Institute has consistently opposed such changes when they were proposed.

He urged the Engineers to drop the project as impractical. However, if this is not done, extensive studies should be made to determine the probable effect on fisheries and wildlife affected by the proposed project.

Numerous organizations interested in fisheries were present and made statements, including Howard Sturgis, of the National Fisheries Institute; Jack Simmons, Virginia Fisherman's Assoc.; Chris Riley and Dr. Thurlow Nelson for the state of New Jersey and representatives of the Fish & Wildlife Service.

PACIFIC COAST

Oregon, Washington Discuss Ocean Shrimp Regulations

Leaders in fishery regulation from both legislative and executive governmental branches of Oregon and Washington met in Astoria recently for informal discussion of mutual problems including regulation of the new ocean shrimp industry.

Among the visitors were Milo Moore, Washington State Fisheries Director; and Washington legislators Sen. Barney Jackson and Homer Nunamaker and Rep. Max Wedekind, of the fisheries committees of the two houses. Oregon representatives at the session included fish commission chairman Harold T. Johnson, Astoria; commission member Charles Mahaffy, Coos Bay; Albert M. Day, Oregon fisheries director; Robert Schoning and Milton James of the fish commission staff.

Washington visitors suggested establishment by Oregon of a closed season on shrimp fishing from November through March to coincide with a recent Washington regulation.

However, Oregon officials said any regulation would have to be based on adequate scientific evidence and that development of the Oregon shrimp fishery is too recent for such evidence to be available.

Discussion of the subject during a meeting of the three-state Pacific Marine Fisheries Commission this month was suggested, with a view toward eventual uniform regulations for the three west coast states.

Oregon Hatchery Egg-Taking Doubles

More than double the previous high number of eggs were taken in artificial spawning of 1958 fall Chinook salmon at the Spring Creek Fish Cultural Station of the Fish & Wildlife Service.

The hatchery collected 72,000,000 eggs from the start of spawning September 18 until October 10. This was more than double the 35,000,000 taken in the previous high year—1954—and the eggs came from less than double the number of fish in the run.

Clyde D. Adams, manager of the Spring Creek station reported that in his 18 years at Spring Creek he has never seen so many fish in the streams.

Oregon Discusses Mink Feed

Discussion of drag fishing for mink feed highlighted a recent session of the Oregon Fish Commission, chairmanned by Harold T. Johnson of Astoria, and held in Portland.

Regulation of mink feed fishing is slated for consideration at a Pacific Marine Fisheries Commission meeting on the 19th to the 21st of this month.

Local drag fishermen and mink breeders testified at the Portland session that the Oregon Fur Producers plant in Astoria handled over 4,500,000 pounds of fish for mink food so far this year. In 1957 the plant handled 6,400,000 pounds and in 1956 more than 8,000,000 pounds.

Drag fishermen suggested mesh size restrictions for control of the fishery. Studies of utilization for mink food of hake, a predatory fish which is of no value for human food, are scheduled to be undertaken by the state seafoods laboratory in Astoria.

Reports indicate that proposals may be made at the Pacific Marine Fisheries session for complete winter shutdowns of the otter trawl fishery along the Pacific coast.

Large Oregon Tuna Landings

Tuna boats swarmed into the Astoria docks early in October, landing 90 tons in one day, while other boats waited their turn to dock at cannery wharves.

The largest numbers of tuna were located off Cape Blanco on the Washington coast and south to Fort Bragg, Calif. Some boat operators reported tuna just off the mouth of the Columbia River.

Among top loads were a 13½ ton cargo and several boats with 8 and 9 tons. A report for one 24-hour period indicated 176,000 pounds of albacore landed at Astoria area plants by 14 boats.

Oregon Fish Pond in Coos County

Construction of an experimental natural "fish farm" for salmon on the east fork of the Millicoma river in Coos County was announced last month by the Oregon Fish Commission.

It will be the third and largest such project in the state's efforts to supplement and establish fish runs in coastal streams.

The 10-acre pond will hold some 500,000 salmon fingerlings with supplemental feeding under natural conditions. When they are approximately one year of age, the fish will be released from the pond into the river to pursue their ocean-bound course.

The new farm is on property owned by the Weyerhaeuser Timber Co. who have spent more than \$5,000 installing culverts and other modifications in two earth fills to accommodate the holding pond. The company has also voluntarily spent approximately \$8,000 to modify the new channel bed as a fisheries protection measure.

Good Sardine Fishing at San Pedro

Continued good sardine fishing and reappearance of jack mackerel enabled San Pedro, Cal. fishermen to view the immediate future with more optimism than usual at the end of October.

A 1700 ton catch of sardines in waters close to the port on October 20 boosted the season production to nearly 47,000 tons, twice the total caught in the entire 1957 sardine season. Since most of the fish were caught within 50 miles of port, the fishermen were also cutting expenses considerably over September when most fishing was done 100 or more miles to the north.

The local fleet has been fishing on a 40,000 ton contract calling for \$50 a ton for sardines.

Another bright note is the appearance of jack mackerel, which have been absent from local waters for several months. After landing barely 2000 tons of jack mackerel in the first nine months of the year, the local fishery has revived and about 2000 tons were caught over a three-week period.

Salmon Nests Counted in Columbia Basin

The aerial survey technique long used by biologists in making counts of American wildlife is also being applied by the Fish & Wildlife Service biologists to count salmon nests in the Columbia River basin. Spawning chinook salmon females, in gouging out a nest, overturn brown alga-covered gravel and small rocks, exposing fresh, light-colored surfaces.

Biologists in small, light planes count the number of salmon nests in a river system as an index of the number of fish utilizing a spawning area.

Biologists report they sighted most of the spawning near shorelines on gravel bars and riffles but nests were also sighted in water up to 30 feet deep.

One of the fundamental reasons for making a spawning survey is to determine how many fingerlings will be produced. This serves as an index to the number of adult salmon that may be available to the commercial and sports fishermen three or four years hence.



Crewmen of the "S. G. Guiseppi" of San Pedro, Cal. washing down a load of sardines at the Terminal Island canneries. The catch totaled over 100 tons. Left to right: Yukata Yoshimoto, Umberto Napoleon, Rocky Louno, Lou DiMeglio, and Tony Dileva.

California Fleet Hampered by Weather

Several weeks of stormy weather in October curtailed the activities of the California albacore fleet. The water turned cold unusually early and fish were small. Some fishermen felt the season could end shortly while others expected another good run depending on an abundance of feed and warm water which tuna must have.

The ports of Morro Bay, San Simeon, Monterey and Moss Landing were full of boats as skippers waited for a break in the weather. The few who did venture out reported scant findings and already talk of tying up for the season was going around.

Capt. Leroy Herrington of the 52-ft. *Peso II* was among the lucky fishermen. He picked up 7 tons all in one school offshore.

Several Moss Landings boats ended their tuna season early and were going to San Pedro to fish mackerel. Among them are the *Hey Mama*, Capt. Linnie Suggs and the *Rita Marie*, Capt. E. W. Allison.

California Fishing Boat Loans Approved

A total of \$1,209,000 in loans have been approved by the Department of the Interior to San Diego, Cal. fishing boat owners during the past 18 months.

Lester Bradbury of the Fish & Wildlife Service office in San Pedro, said that 20 loans have been OK'd in the local fleet. One boat sank before the money was paid and three others were sold after the applications were submitted.

The first loan in California was made to Gestur R. Armann of Costa Mesa for repairs to his abalone boat *Bali*. Armann later went out and discovered 5,000 pounds of jade valued at \$25,000.

Following are the vessels and managing owners who have received loans: *Santa Rosa*, Edward P. Silva; *Evelyn R.*, Machado Medina; *Santa Margarita*, John Leander; *St. Francis*, Herbert Ursich; *White Sea*, White Sea Corp.; *Far Famed*, Maurice Bernadini; *Jo Maria*, Josie Sciuto; *Virgin Mare*, George W. Murphy; *Viv*, Charles E. Graham; *Storm King*, Grover V. Nell; *American Enterprise*, Dr. Malcolm Rice; *Alphecca*, Machado Medina; *Kitty Lee*, Charles L. White and *Zarco*, the Zarco Corp.



One of the three new 32' seiners recently put into operation by Snug Harbor Packing Co., Snug Harbor, Wash. Built by Foss Boat & Joiner Co., Port Blakely, Wash., the boats are powered with Osco 4DF Ford marine Diesels, turning 18 x 15 wheels through 1.5:1 reduction gears.

California Tax Meeting Adjourned

Lack of fishing industry leaders to testify on a bill proposing tax relief for California commercial fishing boats caused Assemblyman Vincent Thomas of San Pedro to adjourn a special meeting of the subcommittee on taxation and revenue on October 10.

Through Thomas' secretary claimed over 200 notices were sent out to fishing industry leaders, only three witnesses came prepared to testify for the bill. Appearing were Mason Case of the San Pedro Fishermen's Cooperative; Pete Repovich of the California Commercial Fishermen's Assoc. and William Ferrar of the Federated Fishermen's Assoc.

The bill proposes that fishing boats be treated as migratory industries and the boats be taxed only for the portion of time they are in port. In California, several industries such as airlines enjoy such exemptions. Under present conditions, it would cut boat property taxes to about 30 per cent of the present rates.

Thomas indicated no additional meetings would be held unless some strong sentiment is expressed by the commercial fishermen.

California Lobster Season Opened

In the fresh fish markets of San Diego lobster pots started boiling at the foot of Market Street on October 1. Both the California and Mexican lobster seasons opened at midnight September 30 with the California season closing March 15 and the Mexican season closing April 1.

Hundreds of lobster camps have been established along the Baja California coast, from Ensenada to Cedros Island. The first shipment was expected from across the border by October 3.

California Fisherman's Council Formed

A California Fishermen's Council has been organized at San Diego to further the interests of commercial fishermen and stimulate the sale of fresh, market fish. C. M. Ghio is heading the new group. He said it will have two sections; one for the area from San Diego to Santa Barbara and the other from Santa Barbara to Oregon. The council, he said, hopes to sign up three-fourths of the state's commercial fishermen.

Suomela to Pacific Fisheries Commission

President Eisenhower on October 9 appointed Arnie J. Suomela, Commissioner of Fish and Wildlife, to be a member of the International North Pacific Fisheries Commission. Suomela replaces Ross L. Leffler who resigned from the commission because of the press of other duties.

Suomela has been director of Oregon fisheries and has

held various positions with the Fish & Wildlife Service. He also is a member of the International Pacific Salmon Fisheries Commission.

Washington Man Criticizes Fisheries Policy

Senator Henry M. Jackson said recently that he favored the appointment of a deputy secretary of state for fisheries matters, stating that the United States does not have a fisheries policy.

He reported that at one conference this country supported the three-mile limit and in the Iceland crisis a few weeks ago we supported Iceland on the 12-mile limit.

Lack of a policy, Jackson said, has left us a bit red-faced in attempting to oppose the Canadians in their announced intention to extend their territorial waters to the 12-mile limit—which could be harmful to the fishermen of Washington.

Washington Tuna Packers Form Organization

Tuna canners in Washington last month announced the formation of a conference established to provide an organization which can speak for the tuna packers of the state on matters of national and international scope affecting its members' interests.

R. E. Silver of the Whiz Fish Products Co. is chairman of the organization, named the Conference of Washington State Tuna Packers.

Directors are Robert J. Breskovitch, Pacific Reefer Fisheries; I. L. Waring, Crown Packers, Inc.; Leo Kite, West Coast Fish Co.; E. B. McGovern of McGovern & McGovern; Charles D. Alhadeff, Rainier Pacific Fisheries Co.; James A. Edington, Fan-Sea Foods, Inc. and Jack William Fleck, Pacific Seafoods Packing Co.

National Fisheries Meeting in Seattle

One of the most enthusiastic and successful regional meetings in the history of the National Fisheries Institute was held in Seattle, Wash. on October 15. Six of the eight directors present were: Myer Bornstein, Bellingham; Mel Carlson, Portland; Bob Erkins, Buhl, Idaho; Frank Erickson, Gene Ruthford and Norman Weitkamp of Seattle. They were enthusiastic over the success of the recent Fish 'N Seafood Week and made plans for next year.

Reports on various projects of the organization were given by Gene Ruthford, chairman of the Quality Committee; Harry Beard, chairman of the Technology Committee and Norman McGregor and John Johnston who reported on Fish 'N Seafood Week.

Seattle Receipts Increase

Receipts of fresh and frozen fish and shellfish at Seattle, Wash. during September totaled 12.2 million pounds, an increase of more than 5 million pounds over receipts during September 1957. Receipts for the period January to September totaled more than 77 million pounds, an increase of .5 million pounds over the same period of 1957. Greater landings and receipts of halibut, salmon and bottom fish accounted for most of the increase.

Fresh and frozen halibut receipts of 3.1 million pounds represented an increase of 71 per cent over September 1957, while salmon receipts of 5.7 million pounds were more than twice those during the same period a year ago.

Seattle receipts of fresh sockeye and chum salmon each exceeded 1 million pounds, while fresh and frozen silver salmon amounted to more than 2 million pounds.

Washington Oyster Season in Full Swing

Oyster production in the State of Washington went into full swing the week of October 20 as oysters reached prime quality and virtually the entire industry commenced full scale shucking and canning operations.

SOUTH ATLANTIC

Georgia Group Forms Seafood Producers Association

Some 29 principals in the shrimping industry in Savannah have formed the Chatham County Seafood Producers Assoc. Members operate more than 50 local shrimp boats. J. S. Cafiero, Sr. has been elected president and Charles DeShocka, secretary and treasurer.

Nelson Haslam, general counsel for the organization, said the basic purpose of the association is to acquaint the public with one of Chatham County's least understood activities and to foster a spirit of good will among those engaged in shrimping.

A general meeting of members was scheduled for late last month at the Thunderbolt headquarters of the shrimping fleet before the annual trek to Key West begins.

One of the initial efforts of the group will be a comprehensive survey of the impact of shrimping on the local economy and the investment the industry requires in both personnel and equipment.

The organizations will exchange ideas and data with trade associations, chambers of commerce and boards of trade for the purpose of protecting the health and well-being of all citizens and inhabitants of Georgia by publicizing the high nutritive value of shrimping products.

Questions Legality of Shrimp Act

A recently enacted shrimp act known as the Brennan Shrimp Act is to be tested in a court case in Georgia at which time its constitutionality will be decided.

The statute, introduced in the legislature at its last session by Rep. Edward T. Brennan, in effect forbids anyone from taking shrimp with a power drawn net in any county with a population exceeding 150,000 according to the 1950 U. S. census or any subsequent census.

The act, a conservation measure, was passed as an amendment to existing legislation which permits the taking of shrimp by power drawn net for live bait. Brennan's amendment tends to prohibit this practice in Chatham County since its population exceeds the 150,000 figure.

Several weeks ago an Isle of Hope resident was charged in city court with a violation of the act. The man's attorney filed a general demurrer attacking the constitutionality of the act and a special demurrer asking the Judge to quash the accusation since it does not charge the defendant with an offense under the law.

Virginia Menhaden Season Excellent

The most sensational news of the Virginia fishery is the excellent luck that has attended the menhaden fishermen this season. In August there was an increase in the catch over August 1957 of nearly 50 per cent. With only average fishing reported along the ocean fishing grounds, together with increasing restrictions required by guided-missile testing agencies, the presence of an almost record amount of these fish in the Chesapeake was a break for the Virginia industry.

The oyster industry also is having good going. Those dealers who have sold the bivalve throughout the summer report as good a summer if not better than 1957. Demand is good and the oysters are in an unusually fine condition for the fall months.

The production of oysters in the Hampton Roads area for October has ranged from 4,300 to 6,200 gallons daily. In the lower Northern Neck, the production has been from 2,900 to 4,500 gallons daily, and on the Eastern Shore, the daily output has been from 400 to 1,100 gallons daily.

A General Motors 165 hp engine turning a 42 x 26 wheel through 3.75:1 Twin Disc reduction gear powers the 56' shrimp boat "Hillsboro" owned by James Green, Wadmalaw Island, S. C. Equipment includes Danforth anchor Tiger Brand wire rope, Linen Thread Gold Medal nets, Stroudsburg hoist and Surette batteries. She uses Gulf fuel and lubricating oils and is finished with International paint.



Virginia Oystermen Operating Under New Sanitation Laws

Oystermen and processors in Virginia now are operating under a stringent new set of sanitation regulations agreed to cooperatively and enforced by the State Bureau of Shellfish Sanitation. Another set of regulations governing sanitation of oyster waters was drawn up to go into effect 60 days after publication. According to R. H. Gregory, sanitary engineer for the bureau, the regulations and the product will be the best ever.

Under the new regulations, the bureau issues certificates of inspection to shuckers and packers on the basis of their compliance with health standards. Packers retain the certificate as long as they remain in compliance, but can lose it should their operations fall below set standards.

A semi-monthly list of certified processors is published by the U. S. Public Health Service and made available to buyers. Processors whose names have been dropped from the list face indirect—but tangible—penalties in their difficulties over continued marketing of oysters.

Virginia Crabs Plentiful

Crab houses in Hampton, Newport News and the middle peninsula report that they are getting enough crabs, although in some sections, the lack of them which existed all winter and spring still exists to some extent according to crab potters. The middle peninsula which has suffered most is getting some crabs now. Capt. Chase Morgan who operated the *Mary E.* from New Point to Hampton says that his cargo is about double now to what it has been, but that he could use more crabs.

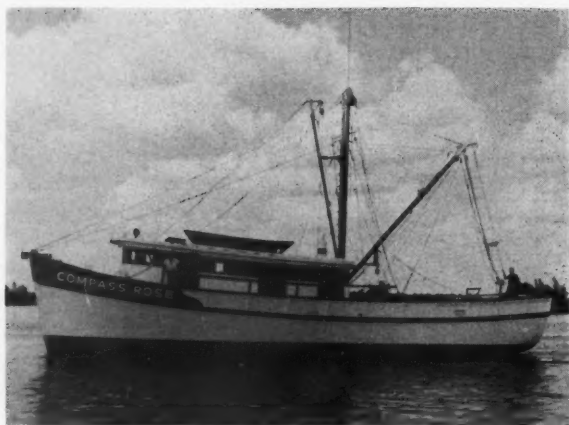
Production of crab meat in the Hampton Roads area for the month of October has run around 13,000 to 14,000 pounds daily. Northern Neck produced daily from 700 to 1,900 pounds daily and the Eastern Shore produced from 500 to 600 pounds daily.

Rules on Florida Oyster Law

Circuit Judge Hugh Taylor of Quincy ruled last month that the Florida State Board of Conservation under existing law cannot close privately held oyster beds to summer tonging, but that the legislature can give the board such power to do so if it chooses. The ruling was made by the judge in winding up a suit by nine holders of oyster bed leases in Apalachicola Bay.

The court made permanent a temporary injunction it had issued upon petition of the lease holders. The lease holders went into court after the Board of Conservation ordered the privately held oyster beds closed during May 1-Sept. 1, closed season for publicly-owned beds.

In his final order, Judge Taylor said that the rule closing private beds was not valid because the conservation board had no statutory authority to promulgate it.



"Compass Rose", new 70' shrimp built by General Marine Boatyard, Inc., Fort Myers Beach, Fla. for Derald W. Pacetti, Fort Myers, Fla. She is powered with a D342 Caterpillar Diesel and Snow-Nabstedt 3:1 gear turning a Columbian 50 x 34 propeller.

New Florida Shrimp Trawler Delivered to Fort Myers

Built with General Marine Boatyard, Inc. standard trawler specifications, the *Compass Rose* has been delivered to Derald W. Pacetti of Fort Myers, Florida. The new shrimp boat from the Fort Myers Beach, Florida firm is 70 feet long, has a beam of 19½ feet and a draft of 7 feet and is completely double rigged.

Power for the *Compass Rose* is supplied by a D342 Caterpillar Diesel with Snow-Nabstedt MG-511, 3:1 reverse and reduction gear and hydraulic clutch turning a Columbian 4-blade 50 x 34 propeller. There is a Hammond stern bearing, stuffing box and rudder post. Two welded steel tanks on each side of the main engine have a total capacity of 6000 gallons of fuel. Auxiliary equipment includes LD1 Lister Diesel and two AUA Onan generators. The two galvanized water tanks in the lazarette have a total capacity of 700 gallons.

She has a large pilot house with shower, head and wash basin. The cabin roof is completely covered with Fiberglas. Included in the accommodations are built-in refrigerator and food freezer, and an automatic water pressure system.

Other equipment includes Hathaway Machinery Company Model 72823 winch, two 12EL-10 Marlow bilge pumps, McKissick towing blocks, One-Mile-Ray searchlight, 6-inch Styrofoam in the ice hold and Real Host galley stove. The *Compass Rose* is finished with Gloucester and Navicote paints.

Florida Claims Only State with Commercial Stone Crab Fishery

Stone crabs are in season and will be until next April 15. These crabs are an important item in Florida's fisheries with an annual catch last year amounting to 240,000 pounds of claws, worth nearly \$90,000 wholesale. Only the right claw of the male crab is marketed.

After detaching it, the fisherman returns the crab to the water to grow a new claw.

Florida is believed to be the only state producing stone crabs on a commercial basis. Most of them are caught on the Gulf coast from Cedar Keys south, but some are also trapped on the lower east coast.

Because the claws spoil quickly, they have to be boiled without delay and then subjected to quick freezing. The public pays about \$1.40 a pound for the cooked claws.

Panama City Has Best Fishing in Years

According to Capt. J. M. Peebe of St. Andrews Bay, Panama City commercial fishing this year has been the best in the history of the city. The weather has been exceptionally good and the catches the best ever.

Snapper, bonita and amberjack gave the greatest number of catches in the history of Panama City commercial fishing. Perfect weather gave the boats more trips this summer than ever before and some boats stayed in only two days the entire season.

Plans Unusual Florida Fish Port

Something unusual in the way of a fishing port in South Tampa Bay is planned by Leon S. Kenney, who operates the Pinellas Seafood Co. in St. Petersburg.

Mr. Kenney has petitioned the Commissioners of Pinellas County for permission to construct an island near Mullet Key on submerged land which he bought from the state of Florida.

By dredging and filling, he would build an island large enough to service a fleet of fishing boats. A fish-processing plant would also be a feature of the port.

South Carolina Trawler Abandoned

The Walling III, valued at \$35,000 and owned by Bert H. Walling of Beaufort was abandoned in the Gulf last month after leaks developed and efforts to use auxiliary pumps were useless.

The Walling III was fishing out of the St. George Packing Co., Fort Myers Beach, Fla. and was in command of Capt. James Black of Beaufort. He and the two crew members were rescued by the Frances R. and taken to Fort Myers.

North Carolina Fisheries Board Makes Suggestions

The advisory board to the commercial fisheries committee of the North Carolina Board of Conservation and Development met last month at Asheville and presented its recommendations based on the recent North Carolina Fisheries Association oyster survey.

The advisory committee suggested that the Association and oystermen themselves assume some of the responsibility in enforcing the oyster cull laws and weight-of-dredge laws, instead of expecting law enforcement officers to catch every violator.

They made several recommendations regarding the oyster planting program and suggested that certain shallow bays be open to tonging only. They also recommended that all shells, instead of just 50 per cent, should be returned to the state for planting, and they suggested that the commercial fisheries committee study the merits of private oyster beds.

Predicts Fair Oyster Season

Dr. A. F. Chestnut, director of the Institute of Fisheries Research at Morehead City, N. C., reported recently that before hurricane Helene, it looked like a fair year ahead for the oystermen—as good as last year if not better.

Damage by Hurricane Helene had not been determined up to the tenth of last month, but the meat of the oysters landed up to that time seemed better than usual for that time of the year.

New Marina for Manns Harbor

Carl Mann of Manns Harbor, N. C. is building a marina on the south side of the west approach to William E. Umstead Bridge over Croatan Sound. A marine railway, a modern boat launching ramp, and facilities for commercial fishermen, are to be completed by the summer of 1959.

Spotlighting the HAMPTON ROADS Seafood Industry

Virginia's Production Center for Food Fish, Oysters, Crabmeat

THE leading food fish and shellfish producing center of the Virginia-Maryland-North Carolina fisheries is the Hampton Roads area of Virginia, which in 1957 had a total production of nearly 36 million pounds.

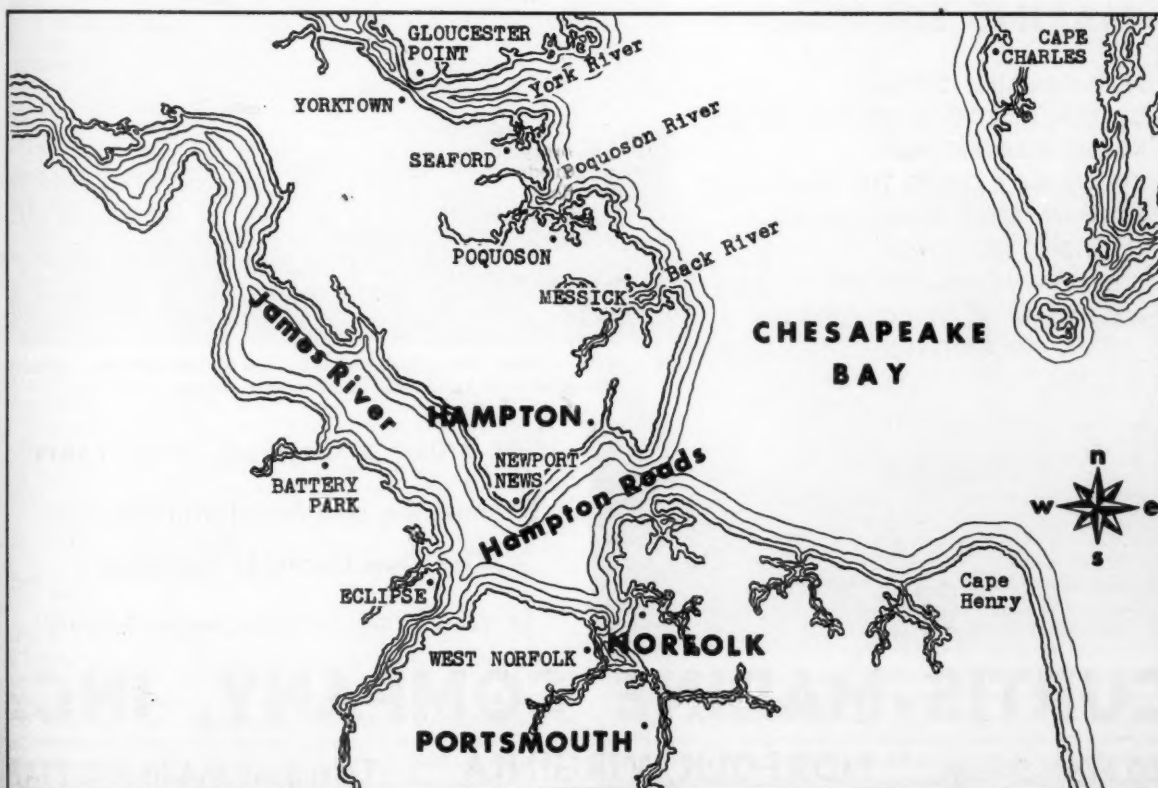
As designated by the U. S. Bureau of Commercial Fisheries, the Hampton Roads area takes in the following ports: Norfolk, Portsmouth, Hampton, Messick, Poquoson, Seaford, Yorktown, Gloucester Point, Newport News and Battery Park. Statistics for the tri-state area are compiled by the Hampton Market News Office of the Fish & Wildlife Service under the direction of William N. Kelly.

For the first nine months of this year, production in the Hampton Roads area was nearly a million pounds ahead of the same period in 1957. While the croaker catch has been off considerably and spot showed a small drop, the catch of all other varieties of fish is up. Croaker still leads as the most important variety with 5½ million lbs. produced for the first nine months. Next in order are scup or porgy, with a catch of 4.8 million lbs., an increase of 600,000 lbs.; and 4.8 million of sea bass, a gain of 1.2 million.

The nine month's catch of gray sea trout was 1.5 million lbs., up 0.4 million; fluke was 825,000 lbs., up 90,000; butterfish, including sea butters or harvest fish was 1 million, up 200,000 lbs.; shad was 747,000 compared to 585,000 lbs. Oyster production was 492,000 gals. or 4,182,000 lbs., a 12,000 gal. increase; while crabmeat output of 1,695,000 lbs. showed a slight decrease. Spot totalled 1.5 million.

Almost the entire catch of scup is landed by the dragger fleet fishing the winter trawl grounds off the Virginia Capes, with heaviest landings in February. Most of the sea bass are caught by draggers in the January-April period. Although draggers land a fair amount of spot, most of the production is caught by net and seine fishermen, with heaviest landings from July to October.

Pound-net fishermen land the bulk of the sea trout catch from March through October, although draggers bring in fair amounts. The heaviest catches of fluke (flounder) are made by off-shore trawlers in the December-February period. While draggers on the off-shore grounds bring in sizable catches of butterfish during the



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◀ Arthur M. Fass, left, secretary-treasurer; and Luie Fass, president, of Fass Bros. Inc., new fish packing firm in Phoebus, Va.

Capt. Alton T. Hudgins, ▶ left, secretary-treasurer; and Bennie Brock, vice-president, of H. F. Lewis & Son, Inc., Hampton, Va. fish packers.



winter months, most of the production is landed by pound-net fishermen from May to September.

Scallop Landings Increase

There has been a big increase in scallop landings this year. In September, production totalled 686,000 lbs. this year compared to 19,000 lbs. for the same month last year. For the most part, the scallops are dredged in 19 to 33 fathoms, 45 miles off the Virginia coast. The scallop draggers hail mostly from New York and New Jersey and there have been as many as 15 scalloping at one time, with an average of 9 boats landing catches.

In recent years the Hampton Roads fishing industry has built up a sizable fleet of trawl boats or draggers, which now totals about 45 vessels, mostly in the 75 to 110 ft. size range. The majority of these vessels go North in the Summer season to fish out of Maine, Massachusetts and Long Island ports. During the Winter and Spring season, several of Northern draggers fish out of Virginia, although not as many have been coming South in the last few years.

While trawlers landing at Hampton Roads fish from New York to North Carolina, the principal Winter trawl ground is 60 to 90 miles off the Virginia Capes and Diamond Shoals off the Carolina coast. Trawlers usually stay at sea for 5 to 8 days with the average trip being a week, and they generally lay over two days between trips.

In addition to trawl fishing, a large amount of the Hampton Roads area production comes from haul seines which are used from March through October. Pound net operations have been less extensive in recent years, but still account for a sizable catch. A small amount of gill netting also is carried on, with shad being one of the important species caught by this method.

The country's largest oyster producing center is the Hampton Roads area. One of the world's finest seed oyster grounds is found in the James River, where a large number of small, open-type boats tong oysters during the Summer and Fall for transplanting to growing grounds in the York, Poquoson and Back Rivers, and numerous locations in Chesapeake Bay. Oyster production is showing a steady increase, and a favorable factor has been lower mortality in the seed crop.

The Hampton-Newport News area is the leading producer of crabmeat, and its many plants handle the catch of a large fleet of crab boats. Crabs are caught on trot lines from April to December, in pots from May to December, and with dredges from December through March. A recent development in the crabmeat industry has been the pasteurizing process which greatly extends the keeping time of the product, and has had a stabilizing effect on the business.

The increased use of refrigerated trucks has brought about major changes in the handling of fish catches in Chesapeake Bay. Where formerly run or buy boats were extensively used to pick up fish from scattered production points, trucks now load directly from a large percentage of the boats. This has speeded the delivery of the fish, and has increased the importance of Hampton-Norfolk-Portsmouth area as a receiving, packing and distributing center.

In observing the Hampton Roads seafood industry, one notes a strong evidence of improved facilities for handling and processing the catch. Great strides have been made during the last few years in the construction of new plants, remodeling of existing facilities, improved docks, addition of new equipment, installation of labor-saving devices and the use of new packaging. This modernization program, which still is in progress, has resulted in better quality seafood products for the consumer, and is helping immeasurably to build a greater market for the Hampton Roads industry.

Fass Bros. Reactivate Fish Packing at Phoebus

A new fish-packing business which opened in the Phoebus section of Hampton this Spring is Fass Brothers, Inc., of which I. Luie Fass is president and Arthur M. Fass, secretary-treasurer. Occupying the former L. M. Newcomb plant which had been closed for seven years, the new firm plans to reactivate the fish packing business at Phoebus. At one time three firms operated packing plants at Phoebus which years ago was an important fish landing point when Hampton was still only a crab port.

The Fass brothers expect to do over one-half million dollars worth of business during their first year. Their modern plant has ample facilities for dressing and filleting fish, three cold rooms with a capacity of 1,000 boxes, and a 5,000 lb. capacity walk-in freezer. They are equipped to ice and fuel boats at their dock.

A. F. Amory & Son, Inc. is reopening its wholesale fish packing house at Phoebus the latter part of this month. The plant has been completely renovated, with new



75' oyster dredger "Mobjack" unloading at dock of her owner, J. H. Miles & Co., Norfolk. Conveyor which carries oysters to plant is shown at right. Capt. Walter Lore is her skipper, and she is powered with a D375, 300 hp. turbo-charged Caterpillar Diesel with Snow-Nabstedt 2:1 reduction gear. The boat has a hydraulically operated conveyor to load oysters from the hopper into which the dredges are dumped.



New oyster packing equipment in Ballard Fish & Oyster Co. plant, Norfolk, Va. Left: Scott-Viner vibrator-washer which takes oysters from shuckers to weigher; right: Chisholm-Ryder hand pack oyster



filler where conveyor-fed empty cans are positioned under filler top and then conveyed on belt to can closing machine. Arthur L. Bonwell, left, packing room superintendent, watches operation.

cooler, ice chute and culling table installed. Arnold Bradshaw is foreman of the plant.

The Amory concern was established in 1925 by the late A. M. Amory and his son Bishop F. Amory, who now heads the organization.

Amory owns three trawlers: the 128' flagship *North Sea*, Capt. Adolph Elmquist; 98' *Mocking Bird*, Capt. Wilbur Gibbs; and 110' *South Sea*, Capt. Everette Haywood.

Ballard Installs New Oyster Packing Equipment

While most concerns in the Hampton Roads seafood industry specialize in oysters or fish, Ballard Fish & Oyster Co., Inc. of Norfolk has extensive operations in both businesses. Their ultra-modern oyster plant, built five years ago is a shining example of cleanliness in oyster packing; the up-to-date fish plant boasts every facility for expeditious handling of fish.

Yet improvements continue to be made, with the latest additions in the oyster packing department. A new Chisholm-Ryder Hand Pack Oyster Filler has been installed by A. K. Robins & Co., Inc., Baltimore, Md. for filling cans with oysters. The unit consists of a circular stainless metal table with bowl type depression, and 24 openings around the outer circumference to match the diameter of an oyster can. Cans to be filled are run on a conveyor to a timed revolving turret which spots them under the filler openings by means of a star feed. Operators stationed at intervals around the machine fill cans from a supply of oysters in the center of the filling top. The filled cans then move forward on a revolving discharge disc for

transfer to a conveyor running to the can closing machine.

The filler is fitted with a specially designed top assembly which permits a controlled volumetric fill of the cans. As a result, the cans are accurately filled without damage to the oysters. By raising and lowering the top of the machine to proper height, ½ pt., 12 oz. and 1 pt. cans are accommodated.

Another new machine at Ballard's is the vibrating-washer-weighing unit. Oysters from the shuckers' buckets are dumped into a hopper of a specially designed Scott-Viner machine that washes and screens the oyster. From the moving screen, the oysters drop into a container on a Toledo scale which calculates the exact price to be paid the shucker regardless of quantity. Formerly only even gallons were tallied and excess quantities had to be retained by shuckers.

Four members of the Ballard family are officers of Ballard Fish & Oyster Co. William P. Ballard is president; Charles M. Ballard, vice president; Carroll C. Ballard, treasurer; and James A. Ballard, secretary.

Ballard operates 8 oyster dredges: O. A. Bloxom, W. A. Ballard, Eva Blanche, William Somers, Pattie May, Warren, Zeph S. Conover and Inez. They also own the watch boats *Wolf Trap*, *Spoonbill*, *Homer Boy* and *Joan Arlene*, and the pump boat *Walter*. The oyster plant employs 240 shuckers.

The Ballard fish plant, which handles the catch of 10 trawlers plus other boats, can pack 200 boxes per hour. Fish from the boats are dumped into a dock washing hopper from where they are conveyed to a wire screen shaker which eliminates trash and ice; they then go on a conveyor over culling table. Twelve cullers sort the fish, removing two sizes and placing them on two other belts. The size in largest quantity is left on main belt and goes to 100 lb. weighing hopper. The other two belts discharge on to weighing scoops.

The Ballard plant has two North Star ice-making machines, each of which produces 34 tons of granulated-type ice per 24-hour day. Ice storage facilities accommodate 120 tons at zero temperature; and there is an ice chute to the dock and screw conveyors for carrying ice to both the fish and oyster packing plants. Leroy Jones is superintendent of the fish plant, which employs 50 cutters.

H. F. Lewis & Son Plan Expansion

Expansion and improvements are planned for the fish packing plant of H. F. Lewis & Son, Inc. at Hampton. Three draggers, the *Dragnet*, *Cavalier* and *Miss Carrie* take out fish at the Company's dock. The firm has two pound nets and owns the run boat *James Thomas* and the pound net boat *Mabel Lee*.

In addition to buying local catches, the Lewis firm handles trailer loads of fish from other producing areas for distribution in the Southern area. Capt. Alton T. Hudgins who formerly owned the trawler *Whitestone* is sec-



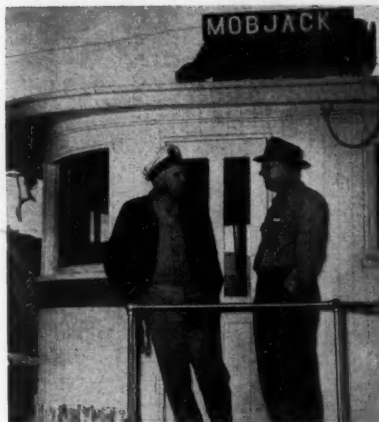
At H. F. Lewis & Son plant, Hampton, Va., left to right: run boat "James Thomas" with 75 hp Lathrop engine; pound net boat "Mabel Lee" with 150 hp. Gray engine, rigged to set nets and drive poles; both owned by Lewis; and Edward Horton's "Gypsy Girl".

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Left to right, Capt. Dave Bonnaville of Miles oyster dredger "Pat", Capt. Pete Robbins of Miles dredger "Ocean View", Capt. W. G. Holloway, superintendent of Miles fleet, and William F. Miles, vice-president of J. H. Miles & Co., Norfolk, Va.



Stanley Fass, Isaac Fass, Inc., Portsmouth, Va. with 1 lb. package of butterfish, vacuum-sealed in Durafilm bag.

retary-treasurer of the firm, Bennie Brock is vice president and Mrs. H. F. Lewis is president. The firm has facilities for cutting and packing fish, with cooler capacity of 600 boxes. A screw conveyor system on the second floor of the plant supplies ice to the dock and packing area.

Hudgins Seafood Corp. of Hampton is operated by Curtis F. Hudgins who started fishing 45 years ago. At one time he had the largest pound net rig in Chesapeake Bay, and recalls the time when his 60' pound net boat *East Hampton* brought 990 bushels of croakers (800 boxes) in one day from one pound net.

Isaac Fass, Inc. to Install New Ice Plant

One of the largest fish packing and distributing firms on the Atlantic Coast is operated by Isaac Fass, Inc. of Portsmouth, Va. Stanley Fass is general manager of the firm which was founded by his grandfather, Isaac Fass, 75 years ago. R. Marcus Fass, brother of the late Sol Fass, is treasurer.

The Fass Company has interests in several boats, owns several pound nets and haul seines. About a dozen trawlers land their catches regularly at the Fass dock, and large quantities of fish are trucked into the plant from various production points.



115' trawler "Irene Y." unloading at Isaac Fass, Inc., Portsmouth, Va. Owned by Fass and her skipper, Capt. Tony Pinello, the vessel has an Atlas Diesel.

While round fish account for the bulk of the Fass output, dressed, filleted and frozen fish now represent 25% of the total volume and further growth is expected in processed products. The firm produces 1-lb. consumer packages of all local varieties including scallops under the Fass brand.

A new North Star ice-making system will be installed in the plant in the near future, which will have a daily capacity for producing 65 tons of pellet ice. The Company has facilities for freezing 30,000 lbs. per day and its storage capacity is approximately 1 million pounds. An average of 250 workers are employed at the Fass plant. In addition to its Portsmouth plant, the Company has a 50% interest in Ballard-Fass, Inc. which was established two years ago at Cape May, N. J. to handle New Jersey varieties of round fish.

Hawkins & Forrest Have Modern Packing Plant

Hawkins & Forrest, Inc. operate a modern fish-packing plant at Hampton which was built in 1947. The firm can handle 1500 boxes a day and has refrigerated storage capacity for 2500 boxes. A new Toledo balance-type scale, registering up to 150 lbs., has been installed for buying fish from the boats.

The Company owns the 96' trawler *Malolo*, skippered by Capt. H. C. Rollins, which was one of the first southern boats to fish from Gloucester, Mass. in the summer. This boat plus the *Admiral*, *Sea Pal* and *Irma Virginia* pack out at Hawkins & Forrest during the winter season.

The firm's summer operations include six longhaul seine rigs and four pound net firms. The Company owns the 50' buy boats *Bernice L.* and *Elsie M.*, and has a packing house at Messick Point for buying pound net fish which are trucked to Hampton. The Company has three trucks. A. S. Forrest is president of the concern and C. B. Gibbs is in charge of the Company's dock.

Other fish packers at Hampton include L. D. Amory & Co. and Johnson Bros., Inc.

Conveyors Move Oysters on Miles Dredger

One of the world's largest oyster packers, J. H. Miles & Co., Inc. employs 375 shuckers in a modern plant at Norfolk. A long dock, at which 6 boats can tie-up at one time, is equipped with a conveyor system which takes oysters from the boat deck to the third-story storage room.

Frank M. Miles is president of the organization, while W. F. Miles is vice president, and R. L. Miles, secretary-treasurer. Capt. W. G. Holloway is superintendent of the Company's fleet and J. W. Pick is plant manager.

Miles owns six oyster dredgers: 105' *Bluepoints*, Capt. Benjamin Ames; 100' *Fisherman*, Capt. John Armsted; 75' *Ocean View*, Capt. Howard "Pete" Robbins; 75' *Mobjack*, Capt. Walter Lore; 65' *Pat*, Capt. Dave Bonnaville; and 100'

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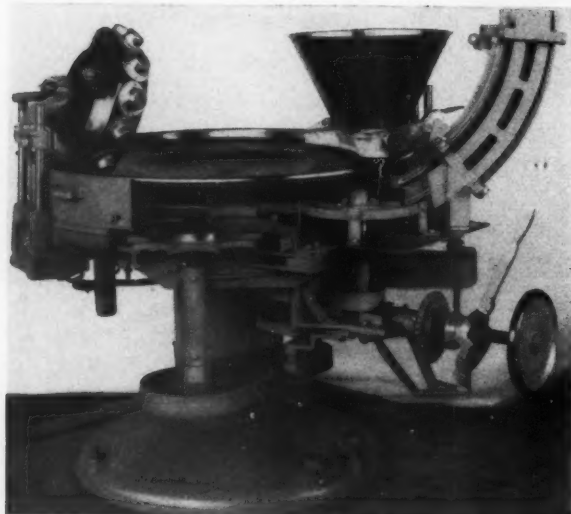
Mrs. H. F. Lewis—president Bennie Brock—vice president
Alton T. Hudgins—sec. treas.

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Photo taken in the Ballard plant showing CRCO Oyster Filler

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Left to right, Bishop F. Amory, A. F. Amory & Son, Phoebe, Capt. Everett Haywood and engineer Ernest Hogge of Amory's trawler "South Sea".

Chesapeake, Capt. George Snow. The Company has four patrol boats: York Spit, Capt. Morris Snow; Carol Anne, Capt. Norris Weston; Charlotte, Capt. Joe Hudgins; Watchman, Capt. Dan Jenkins.

The Bluepoints is equipped for complete mechanical handling of oysters, and has fore and aft dredges on both sides. Oysters from the dredge are dumped in a hopper beside the rail, to be picked up by a thwartship inclined loading conveyor which drops them on an amidships fore and aft conveyor extending to a shuttle conveyor over the center of the loading bin area.

The shuttle conveyor has a reversible belt and pivots on a 180 degree hydraulic turn table, making it possible to drop the oysters in any section of the bin. When the boat arrives at the plant, removable cover plates at the bottom of the bin are taken out, allowing oysters to drop on to a conveyor in the bilge of the boat, which carries them to a discharging conveyor extending through an opening in the hull to the dock conveyor.

A full load of 2800 bushels can be unloaded from the Bluepoints in 1½ hours, whereas the conventional shoveling method would require twice that time. The vessel's main engine is a 312 hp. Fairbanks-Morse Diesel. An auxiliary General Motors 4-71 Diesel operates a hydraulic motor that handles the dredge hoists, while a General Motors 3-71 operates a generator that provides 222-volt power for the conveyors.

Crabmeat Packers at Hampton, Newport News

The Hampton crab packing firm of G. W. Amory, Jr., whose owner George W. Amory, Jr. died October 16 at the age of 56, will continue to operate as heretofore. Thomas T. Richardson remains as general manager of the firm which has been in business over 25 years. The Company operates the crab dredge Margaret Bell and the dragger Nancy Gwen.

P. K. Hunt & Son and Chesapeake Crab Co. occupy adjoining quarters for the packing of crabmeat. P. K. Hunt and H. B. Hunt, Sr. own the Hunt concern, while the latter operates the Chesapeake firm. The third generation of the Hunt family, H. B. Hunt, Jr. is foreman at Chesapeake Crab and G. S. Forrest is manager.

W. B. Hunt, another son of P. K. Hunt, operates Hunt Crab Meal Co., which produces crab-scrap meal, with H. D. Evans as manager. P. K. Hunt & Son own the 60' crab dredge Helena, and P. K. and H. B. Hunt own the 90' trawler P. K. Hunt which is skippered by Capt. Bill Mansfield.

Graham & Rollins, Inc. is another crabmeat packer at Hampton, having taken over the former E. K. Lankford plant two years ago. B. S. Rollins is president of the firm, while J. B. Graham is vice-president.

William Kelly operates the Hampton crab packing firm of Coston Co. as well as the by-product firm of Crab Products Co. Another crab-scrap meal producer at Hampton is Lee & Coston. Lawson Seafood Co., Inc. packs crabmeat in the former W. J. Bradshaw plant.

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Martin & Richardson Seafood Co. is a crabmeat packing concern at Newport News in which E. H. Richardson and Henry C. Martin are partners. They own one crab dredge boat, the 60' *Bluefish* and two 40' crab boats.

Thornton White is manager of Old Dominion Crab Co. of Newport News, which packs crabmeat with 65 to 70 pickers and operates the crab dredge boat *Old Point*.

Levern L. Cockrell, president of Tidewater Crab Co., Inc. of Newport News, is installing a new dehydrator for drying crab scrap, which is used as a poultry feed ingredient. In business for 6 years, the firm employs 80 people and owns the 55' crab dredge *Hazel Gleen* and the 60' dredge boat *Sea Bird*.

Chesapeake Bay Frosted Food Corp., Newport News, headed by J. O. Saunders, produces prepared frozen seafoods under the "Mr. Frosty" brand. The line includes breaded oysters, shrimp, fish sticks, scallops, deviled and imperial crabmeat, crabmeat patties and crabmeat cakes.

Three Oyster Packers at Hampton

A new, modern, brick plant, completed this Spring, is occupied by G. T. Elliott, Inc., Hampton, for the packing of oysters, crabmeat and clams. Established in 1910, the business is headed by Daniel P. Elliott, Sr., with D. P. Elliott, Jr. as vice-president and Robert E. Moberg, secretary.

A pioneer in opening oysters the year around, the Elliott firm maintains its own oyster and clam grounds. It has an oyster and crab dredge boat, the 56' *Nellie R.*, Capt. Cleveland White, contracts with other dredge boats and handles the production of 6 patent tong clam boats. All stainless steel equipment is used in the plant, which has two quick freeze boxes for oysters and crabmeat.

Established in 1884, the oyster packing plant of J. S. Darling & Son at Hampton employs 100 shuckers and markets under the Chesapeake Bay brand. General manager is George C. Bentley, who has been with the Company 12 years and is also Mayor of Hampton.

Darling operates three oyster dredge boats: the 82'

Kecoughtan, Capt. Clarence Mills, named after the original Indian settlement on the site of Hampton; the 68' *Pamunkey*, Capt. Herbert White, named for a York River Indian tribe; 60' *Metunga*, Capt. Alfred White. The Company also owns two 40' patrol boats, the *Jock*, Capt. Robert James; and the *Mulberry*, Capt. S. E. Ironmonger; and the 90' trawler *Powhatan*, Capt. Severn Robbins.

M. F. Quinn operates the oldest crabmeat plant in Hampton. His firm, which is successor to the McMenamin Co., established 80 years ago, also packs oysters. Floyd W. Moore, sales manager, is celebrating his fiftieth year with the firm.

Quinn owns the trawler *Ocean Spray*, the oyster and crab dredge boats *Norman T.* and *Louisa Bush* and the oyster buy boat *Captain Sam*. Employing 25 crab pickers and 25 oyster shuckers, the Quinn plant has been kept modernized. Handling of oysters has been mechanized with one man doing the work of five in unloading oysters.

The Hampton Roads area has excellent facilities for outfitting, repairing, designing and building fishing boats. It is distributing center for marine equipment and supplies, and parts and service are available for all popular makes of products.

Virginia Tractor Handles Caterpillar Diesels

Caterpillar marine Diesels are distributed by Virginia Tractor Co., Inc. which maintains complete sales, service and parts facilities at Norfolk and Richmond. Ralph A. Amos, with headquarters in Richmond, is in charge of engine sales. E. Lee LeCompte is manager of the Norfolk office, Mario "Moose" Onorati is service manager and Thomas Boyce is parts manager.

A recent Caterpillar installation is the D353, 290 hp. model in the 110' trawler *Sea Queen* owned by William R. Rowe of Hampton. The engine has 3:1 reduction gear and swings a 52 x 44 Columbian propeller.

The marine supply firm of Paxton Co. is readying new quarters at 1025 East Main St., Norfolk, which will provide 50% more (30,000 sq. ft.) of floor space on one floor,

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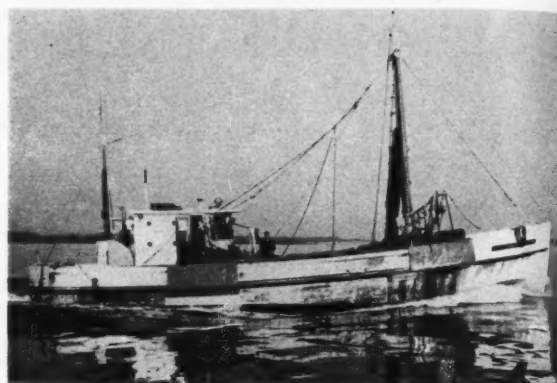


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A typical Hampton Roads trawler, the 65' "Elsie-Jane" owned by Herbert Freeman of Hampton. She is powered by a 6-110 General Motors 220 hp. Diesel with 3.75:1 reduction gear and 3:1 power take-off, installed by Western Branch Diesel, Inc.

located a block from the waterfront. In business for 37 years, the firm distributes Columbian propellers, New Bedford Cordage, Roebling wire rope, Federal paint, Raytheon electronic equipment, Kidde fire extinguishers, Onan generators, Danforth anchors, Exide batteries, Canor Plarex clothing and Tobin Bronze propellers.

Curtis-Marine Adds Fuel Injection Shop

A new, completely equipped fuel injection shop has been added to the facilities of Curtis-Marine Co., Inc., Norfolk. The firm maintains an authorized American Bosch Service Station with factory trained personnel.

Curtis-Marine has one of the largest Diesel engine repair shops on Chesapeake Bay, servicing all makes of engines. Dock facilities are provided for installation and overhaul.

Among the marine equipment lines handled by Curtis-Marine are Allis-Chalmers Diesels, General Motors Cleveland Diesels, Kohler electric plants, Snow-Nabstedt gears, Twin Disc clutches, Universal engines, Westinghouse air compressors and controls, Pyrene and C-O-Two fire extinguishers, and Willard batteries.

George H. Curtis, Jr. is president of Curtis-Marine Co. which was established 27 years ago. George H. Curtis II is vice president and Charles E. Snyder, Jr. is secretary-treasurer.

A recent Allis-Chalmers Diesel installation by Curtis-Marine was made in the 75' trawler *Ocean Spray*, owned by M. F. Quinn of Hampton. It is a Model 8DCMR-2505, rated 388 maximum hp. and 296 continuous shp. at 1200 rpm., and is fitted with Snow-Nabstedt 3:1 reduction gear, Walter 3.5:1 power take-off and Westinghouse air controls for clutch, throttle and take-off. A similar Allis-Chalmers Diesel now is being installed in the *Pamlico*, owned by Capt. Herman Roeburg of Wildwood, N. J., who fishes her out of Portsmouth during the winter.

Coast Engineering Provides Design Service

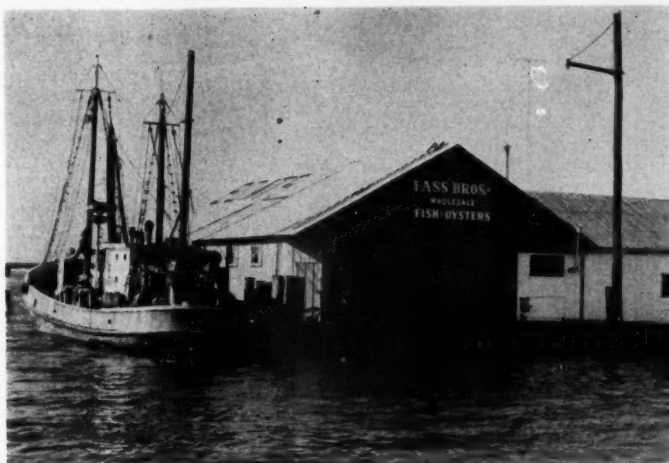
Coast Engineering Co., Norfolk naval architecture and marine engineering firm is headed by Harry W. Keeling, Jr., naval architect and marine engineer, with John T. Carr, Jr., as chief marine engineer. Having established his present business in 1939, Mr. Keeling has the first professional certificate in naval architecture issued in the state of Virginia. The firm is equipped to provide complete engineering and design service, as well as construction supervision, boat inspection and marine surveying.

The firm employs a staff of 16 experienced technical personnel specializing in commercial vessels of all types. Keeling uses methods of design that lend themselves to simplified construction and make it possible for builders to handle jobs without elaborate facilities. A special service of the Keeling organization is its research program for developing new ideas for boat design and construction.

In addition to new construction, Keeling handles conversion jobs, and plans are made to meet Coast Guard

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approval or ABS specifications when desired. N. T. "Tom" Torbert is head of the inspection and survey group at Coast Engineering.

A. B. Grinnell & Co. of Hampton, operated by Mr. and Mrs. A. B. Grinnell, specialize in outfitting trawl boats and gillnetters. They carry Starr nets, Whitlock rope, Brownell twine, Roebling wire rope, paint, boots, etc.

A boat yard, marine engine and supply business is operated at West Norfolk by Curtis-Dunn Marine Industries, Inc., which is headed by John Hughes Curtis, with H. L. Smoak in charge of marine sales.

The firm is distributor of Chrysler marine engines, and dealer for Waukesha and Harnischfeger P&H marine Diesels. Propeller reconditioning service is available through its authorized "Federal" repair station. Other products handled include Exide batteries, Bendix electronic equipment, New Bedford rope and Baltimore paint.

The yard, which has three railways and six cradles, with 800-ton capacity, built the replicas of the three Jamestown ships. A new Chrysler Royal M44, 155 hp. V-8 engine was recently installed by the firm in the 40' crab boat owned by Joe Evans of Fox Hill, Va.

Western Branch Diesel is General Motors Dealer

Western Branch Diesel, Inc. of West Norfolk is Virginia distributor of General Motors Detroit Diesel engines, Palmer gasoline engines, and American-Marc and Petter generating sets. Complete facilities are provided for engine installation and overhaul, and there is an 18-ton dockside crane with 12' draft dredged slip. Herbert A. Haneman is head of the concern, while George Womple is in charge of sales.

Western Branch recently installed a new 6-110 General Motors Diesel with 4.5:1 reduction gear, Twin Disc front power take-off and 53 x 38 propeller in the Darling oyster dredge *Kecoughtan*.

Haldeman Marine Sales of Hampton handles a line of marine supplies including Federal propellers, Woolsey paint, Goodrich Cutless bearings, Jabsco pumps, New Bed-

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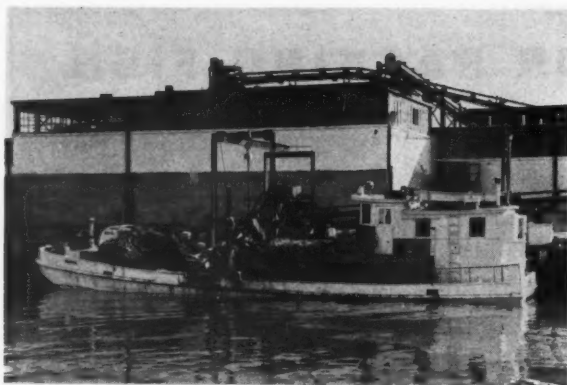
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59' oyster dredger "Warren" unloading at plant of her owner, Ballard Fish & Oyster Co., Norfolk. Capt. Avon Forrest skips the vessel which has a 6DAMR-779, 185 hp. Allis-Chalmers Diesel, installed by Curtis-Marine Co.

ford rope and Raytheon electronic equipment.

Lockridge & Seel, Inc. of Norfolk distribute Graymarine engines, Murphy Diesels and Enterprise Diesels. There are three Norfolk shipyards that specialize in handling fishing boat work: Moon Shipyard & Repair Corp., Colonna's Shipyard, Inc. and Craig Bros. Marine Railway.

Fairbanks, Morse & Co. maintains a district office in Norfolk, as do RCA Service Co. and Raytheon Manufacturing Co.

Diesel Injection Service Has Lister Diesels

One of the largest and best equipped fuel injection shops in the country is operated by Diesel Injection Sales & Service, Inc., Norfolk. Headed by Herbert A. Wittersheim, president-manager, and George A. Showalter, vice president, the firm has a company plane with three mechanics who can fly to cover emergency jobs.

Testing, repairing and rebuilding operations at the Company's main shop in Norfolk are handled by 15 technicians, who work in air-conditioned, temperature-controlled rooms with the latest equipment.

In addition to Diesel fuel injection work, for which an exchange service is available, the firm handles hydraulic governors. A large stock of parts is carried for all leading makes of injectors such as American Bosch, Roosa-Master and Bendix-Scintilla, as well as Woodward and Marquette governors.

Diesel Injection Sales & Service recently was appointed Virginia distributor of Lister Diesels, including air cooled engines to 30 hp. and water cooled units to 80 hp. The firm also handles related accessories such as Wix filters, starting fluid, Aeroquip flexible hose, Weatherhead hose and fittings, and an extensive line of Diesel engine parts.

Smola Features Navigating Instruments

A complete line of navigating and electronic instruments is handled by E. Smola Co., Inc. which maintains stores in Newport News and Norfolk. They stock the full Bendix marine electronic line, Ritchie compasses, Edo fish finders and Loran, Ray Jefferson telephones, and navigating charts. Electronic service and compass adjusting are provided. Established in 1915, the firm is operated by Emery E. Smola and his son Robert G. Smola.

Norfolk Marine Co., established 13 years ago, is operated by partners Garland Kight and Roy W. Nagle, Jr. They also own Hampton Marine Co. at Hampton of which Jack Dyke is manager. The firm handles Cating rope, Surrette batteries, Hazard wire rope, Perkins and Wilcox-Crittenden hardware, A. & P. life-preserving equipment, Sutton and Lovett electric bilge pumps and Chris-Craft engines and Evinrude outboards. The Company recently sold a Model ML, 145 hp. Chris-Craft engine for the crab boat owned by Capt. Willie Crockett of Hampton.

I. Cooper's supply store at Hampton carries Wall rope, American Tiger brand wire rope, Linen Thread Co. nets, Devoe & Reynolds paint, Baltimore copper paint, U. S. Rubber clothing and footwear, Boston & Lockport blocks.

Proper Operating Temperature Improves Engine Performance*

In the old days, a marine engine operated cold. So cold in fact that some of the outward parts of the block or manifold felt like a cake of ice to the hand. Older design permitted that condition. Today, engines of latest design, operating at high revolutions and with extra high compression ratios should be operated at or near a temperature that provides the degree of thermal efficiency the designer had in mind, along with all the other provisions that permit truly modern engine performance.

A typical, late design engine must almost necessarily be fresh water cooled since it demands operating temperatures far higher than the top safe limit for salt water cooling, which is around 145 degrees F. Fresh water cooling employs the recirculation system and the most used system today is likely to employ the heat exchanger principle of cooling.

If all points of an engine installation were made according to Hoyle, including exhaust lines, then 180 degrees F. might be the very best operating temperature. In other words, when the jacket water in average modern high speed engines is around 180 degrees, engine performance becomes excellent. But, and this is an important but, perhaps the exhaust line has not been "engineered" exactly right and creates some unexpected back pressure on the engine valve movement.

This mistake alone would cause the valves to operate very much hotter than the average temperature across the block, so we may have to drop from the 180 degrees recommendation to accommodate a poor exhaust line and there might have to be further temperature drop because of some other installation error or perhaps an error in design of some part of the engine.

A regular engineer or the experienced skipper may run an engine at a higher temperature than should the novice, especially if the latter operates his craft from a flying bridge and has no knowledge of how the engine is operating when remotely located under a closed hatch. In such a case, the temperature leeway should be greater unless of course, the temperature is held by a good quality automatic thermostat.

A cool running engine wastes fuel and wears out quicker. What's more it does not deliver its rated power. On the average medium hp. marine engine of modern design, at least 100 revs. have been obtained by test when a few degrees more heat has been applied to the jacket water. This means more power with the same fuel, together with added smoothness.

The well designed marine engine to be cooled by the recirculation system, should logically be equipped with a liberal jacket pump or circulator because the faster the flow, the more even will be the temperature across the block. Today, the best exponents of the recirculation cooled engine show the employment of the heat exchanger located close to the engine and with the aid of a fast flow of the jacket water between the parts, and an ideal condition begins to pertain.

Don't operate a salt water cooled engine at a higher temperature than 145 degrees F. and even at that average temperature showing on the instrument board there is probably some part of the jacket in the region of the exhaust ports which is hot enough to cause salt crystals to form. The danger of such formations is well known.

On the other hand, don't run fresh water cooled engines too cool and thus ignore some of the best or most important features obtainable with fresh water cooling. Top authority has stated that for every gallon of fuel drawn in through the carburetor, a gallon of water is also drawn in so that it is easy to note that low temperature operation invites condensation that destroys the full value of the lube oil. Low temperatures dilute lube oil from condensed fuel and the moisture causes sludge to form. The natural result is a faster wearing engine.

* Material written by Walter Shutt of Sen-Dure Products, Inc., Bayshore, N. Y.

GULF OF MEXICO

Louisiana Divers Find Shallow Water Scallops South of Dead Man' Beacon

The area involved stretches from Chandeleur light to Dead Man's beacon on the Breton Islands, about 50 miles to the south. These grassy gardens are found in water from two to nine feet deep; and they vary in width from a half to eight miles. They cover perhaps 100 square miles. Should the investigating personnel of the Commercial Seafood Section discover scallops in this entire area then the possibilities of commercial operations appear good.

Most of the scallops found by the skin divers were around "holes" in the grassy gardens. More than 100 were gathered around one 30-ft. hole. Scallops were reported in this same area fifty years ago, but no further thought was given to any commercial possibilities until now.

Louisiana Reports Heavy Shrimp Run

The upsurge in shrimp production which started in August continued through September and was still going strong the middle of last month.

In September, catches unloaded at Morgan City, Berwick, Patterson, Delcambre and Cameron amounted to close to a million pounds. Last September only 78,400 pounds were brought in to the plants of Morgan City, Berwick and Patterson.

According to Vincent Guzzetta, head of Deep South Seafoods, Inc., Berwick, October promised to be the best month his concern had seen in a long time. The high boats unloading at Deep South since October 1 were the *Julie Rose*, Capt. Harold King with 48 barrels; *Miss Bobbie*, Capt. Norman Adams with 41.2 barrels and *Gulf Shore*, Capt. Herman King, with 35 barrels.

At Twin City Fishermen's Cooperative, all trawlers arriving in recent weeks had good catches. A few of the high boats were the *Uncle Buddy*, Capt. Joe Webster with 64 barrels; *Capt. Arthur*, Capt. M. A. Yonge, 60 barrels; *Cleo Florence*, Capt. Clyde Davidson, 52 barrels; *Chippewa II*, Capt. Ernest Webster, 58 barrels; *Uncle Sam*, Capt. Ray Jumonville, 40 barrels; *Toss Up*, Capt. T. Harrington, Jr., 36 barrels; and the *Courageous*, Capt. F. C. Felterman, 32 barrels.

Fishing Hurt by Lack of Fresh Water

Dr. Lyle St. Amant, New Orleans, member of the Louisiana Wild Life and Fisheries Commission, says lack of fresh water in marshes has hurt the seafood industry. This lack of fresh water, he maintains, has been caused by control measures which have cut off the fresh water supply to the marshlands.

Coast Guard Weather Boat in Alabama

The Coast Guard and the Weather Bureau will work together collecting valuable weather information in the Gulf of Mexico, according to Vice Admiral Alfred C. Richmond, commandant of the Coast Guard in Washington.

The Coast Guard cutters *Sebago* and *Adroscoggin* will be used by specially trained weather observers to gather upper-air weather information.

The *Sebago* is to be based in Mobile and the *Adroscoggin* based in Miami.

The cutters will travel in various parts of the Gulf and the weather observations will be gathered from where



"Gulf King" completed for Edward Crittenden by Hardware and Marine Supply Co., Mobile, Ala. will call Bayou La Batre, Ala. home port. The new 64' shrimper is powered by a 163 continuous hp. Murphy Diesel.

ever the cutter may be located. In addition to getting the weather information the cutters will still perform their important training and patrol duties.

Alabama Concern Completes New 64-Foot Shrimp Boat

A new shrimp trawler recently completed by Hardware and Marine Supply Co. of Mobile, Alabama has been delivered to Edward Crittenden, Orlando, Florida. Formerly a Florida state biologist, Crittenden will use Bayou La Batre, Ala. as home port while fishing off the coast of Texas.

The new 64-foot boat, *Gulf King*, is powered with a Murphy Diesel rated 163 continuous horsepower at 1200 rpm. with 3:1 Snow-Nabstedt reduction gear turning a 50 x 38 Coolidge propeller. The engine is cooled with a Walter keel cooler.

There are four 8-volt Exide batteries and a Lister Diesel light plant. Other equipment includes Jabsco bilge pump, Columbian stern bearing and stuffing box, Real Host galley stove, and Rochester winch cable. She is finished with Woolsey paints. The *Gulf King* carries a Stroudsburg 515 1/2T hoist and is rigged with Columbian rope. Electronic equipment consists of an Apelco radio, Bendix DR-9 depth sounder and Metal Marine pilot. The *Gulf King* is the first in a projected series of three.

See Need for Dredging Bon Secour River

Fourteen shrimp boats will be leaving the Bon Secour River area unless the river channel is dredged, according to John R. Nelson of Bon Secour Fisheries.

Nelson said the boats are manned by three-man crews, and each boat represents an average gross annual income of \$30,000, most of which is spent in Baldwin County.

Nelson said the shrimp boats must have deeper water to come up the river to unload their catch and that although all 14 are local shrimp boats, they will have to go either to Florida or Mississippi to unload.

The river cannot be entered by the shrimp boats except at high tide on account of sand bars at the entrance of the river channel and also farther up the river.

A representative of the shrimpers was scheduled to meet late last month with the county commissioners to ask for aid from the county in the situation.

Texas Shrimpers Have Exceptional Month

Favorable weather was largely responsible for the increased shrimp landings at principal Texas ports during the 30-day period ending October 15 when 9.1 million pounds of shrimp were brought in by the Texas trawler fleet. This, the highest of the year, exceeds the 5.4 million pounds in the previous month and the 6.6 million pounds landed during the 30-day period ending August 15, which previously held the record.

Landings of other seafoods at principal ports of the five Gulf states showed an improvement for the first nine months of 1958 when compared with the same periods in 1956 and 1957, with the exception of oyster production.

Edible finfish production for the first nine months of 1958 reached 6.2 million pounds, an increase of seven per cent over the same period in 1957 and 12 per cent above that during this period in 1956.

Landings of blue crabs continued to increase. Up to September 30 some 7.8 million pounds of blue crabs were landed at principal Gulf States ports, which is 12 per cent above that during the same period in 1957 and 28 per cent above the 5.6 million pounds landed in 1956.

Crabmeat production increased during the first nine months of 1958, with 816,800 pounds processed, compared with 698,800 pounds in 1957 and 571,000 in 1956.

To Restore Padre Island Channel

Charles R. Johnson, port director of Port Mansfield, Texas said recently that Secretary of the Army Wilbur Brucker has approved the recommendations for the restoration of the channel across Padre Island and the installation of stone jetties as set out by the Corps of Army Engineers, after making a complete survey of the ill-fated project.

The Navigation District spent more than 2.5 million dollars for a deep sea channel and jetties through Padre Island to connect Laguna Madre with the Gulf of Mexico. Within a few months after completion, the jetties built of concrete tetrapods disappeared in the sand. A 1500-ft. bar formed in the 12-ft. channel at the Gulf shore, cutting the channel depth to 4 feet.

Mr. Brucker's approval is the last step before the matter of appropriation by Congress of 3.4 million dollars to pay the cost of replacement and repair.

Fisheries Course at Del Mar Institute

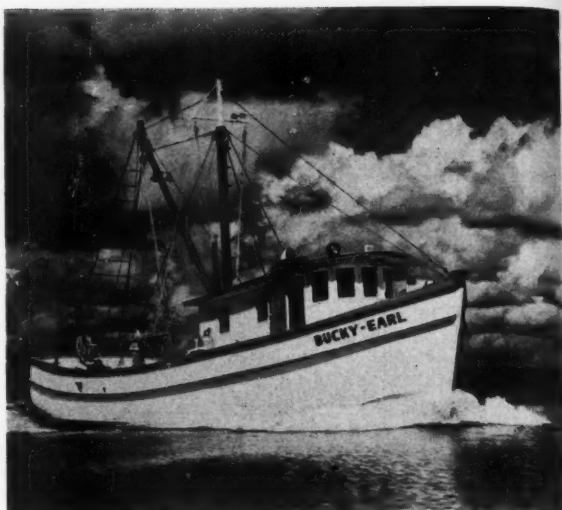
A new vocational course in commercial fishing and the shrimp industry, sponsored by the Texas Shrimp Assoc., the Texas Education Agency, and the Del Mar Technical Institute, was expected to open last month. The course will include more than 200 hours of instruction on subjects relating to the operation of fishing and shrimping craft. Such subjects as navigation, depth recording, radio, fishing gear and operation, mechanics, biology, and sanitation will be presented by qualified instructors.

Sixty hours will be devoted to the study of navigation, 9 hours on radio and depth recorded operation and technique, 50 hours on mechanics including engines, pumps, motors, etc.; 75 hours on use, maintenance, repair and operation of fishing gear; and 6 hours on biology and sanitation.

A job on a fishing or shrimping vessel is guaranteed each student who satisfactorily completes the prescribed course.

Croaker Runs are Big Success

The croaker runs in Texas coastal waters are now in full swing, according to Terrance Leary, marine biologist of the Game and Fish Commission. The croakers, members of the same family as speckled sea trout and redfish, usually weigh under one pound. More than 300 tons were taken by pole and line fishermen in the Rollover Pass area, near Gilchrist, during last year's migration into the Gulf.



The deep water shrimp trawler, "Bucky-Earl", was built by Morehead City (N.C.) Shipbuilding Corp. for Joseph T. Buckmaster of Aransas Pass, Tex., is powered with a General Motors 6-71 Diesel with a 4:5:1 Allison reduction gear. The propeller is a 44 x 36 4-blade Federal mounted on a 3" Tobin Bronze shaft. Equipment includes an Onan auxiliary generator, Surrrette batteries, Danforth anchor, Wall manila rope, and One-Mile-Ray searchlight.

Mississippi Seafood Commission to Discuss Marine Deaths in Area

The Mississippi Seafood Commission met last month at which time it was decided to arrange a meeting with representatives of the Coast Chemical Corp. to discuss reports pertaining to destruction of marine life in the area.

In the Bayou Casotte area it has been reported that marine life has been killed at times, and it is believed that chemicals and water at high temperatures along with detrimental fumes discarded by the plant are responsible for the high mortality rate that occurs periodically in the area.

The commission will attempt to discover the source of distribution and attempt to eliminate it by talking to representatives of the corporation.

Report of Research Vessels

The research vessel *Oregon* returned to Pascagoula in October, completing a 50-day exploratory shrimp trawling cruise along the northeast coast of South America.

The objective of this trip was to obtain more detailed fishing information on pink shrimp and brown shrimp which were observed over wide areas off the Guianas during a previous cruise. An area off Dutch Guiana provided the best catches of the trip.

Bottom conditions were found quite suitable for shrimp trawling in all areas fished. Although minor tearups were not infrequent, no gear was lost due to bad bottom anywhere east of Trinidad.

The research vessel *Silver Bay* returned to Pascagoula on September 29, completing a 28-day exploratory trawling trip on the Continental Shelf of the Gulf of Mexico to gain further information on the distribution and availability of bottom fish, primarily snapper and grouper.

The first half of the trip was directed toward exploration of the Continental Shelf adjacent to the Florida west coast between Cape San Blas and the Dry Tortugas.

The second half of the cruise was spent obtaining additional information on the seasonal availability of snappers in the north and northwest Gulf.

Fishing Vessel Efficiency

(Continued from page 8)

improved and this is as true of the modern western fishing boats as it is of dug-out canoes in Africa," he pointed out.

"For instance, it is common to find ballast used to counteract rolling whereas ballast actually increases the rolling. Again, rule of thumb boat builders believe that a bluff bow tends to reduce pitching whereas a sharp bow is much more effective. These examples show that the knowledge acquired in the study of naval architecture often seems to fly in the face of commonsense, but research and experiments prove the validity of the scientific and technical data acquired by these means."

Several years ago Mr. Traung carried out a series of tank tests with model fishing boats in Sweden. The results of those tests indicated that many improvements in hull design could be made even in the latest type of Swedish fishing vessel. Subsequently, tests of fishing boat models have been carried out by experts in the U. K., Germany, France, U. S. and Japan, and through these tests evidence has accumulated to confirm that the low prismatic coefficient design of the hull can result in many advantages other than fuel economy.

Seakindlier and More Efficient Boat

"A low prismatic design of boat is seakindlier," said Mr. Traung. "This means it is a much more comfortable vessel for the crew when sailing in rough weather. It also means that such a boat can continue fishing in rougher seas and in a higher wind force than is possible in the typical present-day fishing boats, which increases the efficiency of the boat as a fishing vehicle and leads to lower costs in operation."

He recounted a recent experience in the test tank of the Fisheries Department in Tokyo, Japan, where Japanese scientists have been carrying out a series of model tests of fishing boats on behalf of FAO.

"These tests have been made in simulated rough water conditions and results confirm the fuel savings I have already mentioned," he stated. "In the course of the tests one of the high prismatic models behaved so roughly and with such heavy movements that it broke the tank testing instruments!"

"Again, supporting what I have said about the low prismatic design, there is the research work of Professor Cedric Ridgley-Neveitt of the Webb Institute of Naval Architecture, Glen Cove, Long Island, USA. He has been testing models of 100 ft. fishing vessels and found that the low prismatic coefficient design would cut fuel costs by 35 per cent when operating at normal speed in calm water conditions. In a rough sea, the fuel saving would be higher."

In view of the high operating costs in the fishing industry and the declining rate of profit, there is a very practical need for fishing boat builders and owners to have their vessels designed in the light of knowledge gained by technical research. There is also an urgent need for Governments and the fishing industry to finance and support more such research on fishing boats.

Progress in Design Depends on Research

"We have shown what sort of savings can be effected by the use of the low prismatic design, knowledge of which is the outcome of a considerable amount of scientific and technical research in the past few years," Mr. Traung pointed out. "This information alone indicates the benefits which are to be derived from research, for it is only by research that it will be possible to improve the efficiency and performance of fishing boats and this, in turn, will contribute to the profitability of the fishing industry."

"Although I have dwelt on fuel savings to be effected through a change in hull design because this could be such an important factor in the economy of the fishing industry, there are other developments which come from scientific research and experiments," he continued. "For example, there is the question of the stern design of fishing boats.

There are, of course, a number of different types of stern designs but experiments have shown that the transom stern offers less resistance at sea and has the other advantages of being easier and cheaper to build, as well as providing more working room aft for the crew. Recent tests show that a boat built with such a stern has less acceleration at the bow and ships less water. This is logical as a transom dampens the movements of the boat.

Many Other Improvements Possible

"Then there are such factors as the expense of construction, the efficiency of working conditions on board, and protection from weather for the crew," Mr. Traung went on. "Take construction, especially of European wooden fishing boats. Compared, for example, with American boats, European vessels, particularly Danish boats, use too much timber. They could be built of thinner planking and yet retain their strength and cost considerably less."

"Again, boat designers and builders need to introduce time and motion studies on the work done on board vessels so that deck design and arrangements, and deck machinery, could be planned for efficient operation. A case in point is that of Italian trawlers. In many of these the crew have to move the fish they catch from the stern of the boat to the foredeck where the fish-hold is placed under the wheelhouse. Such an arrangement is inefficient."

"Another instance is that found in North Sea boats in which fish are salted on board," he added. "In most of the boats the crew have to bend over barrels, placed on the deck, in which they pack the fish, yet there is no reason why the barrels should not be arranged on a table, at a comfortable and efficient working height."

Mr. Traung gave other examples, such as providing shelter for the crew on the working decks, designing the tables and benches in the crews' quarters to be at a comfortable height and introducing, say, infra-red ray heating on the working deck.

"Why, even the bunks the crew sleep in could be improved and made more comfortable at no extra cost," he exclaimed. "As it is, fishing boat builders have mostly copied the bunks installed in big ships which pitch and roll in a very different way so the poor fishermen are flung about in their present bunks."

Meetings Organized to Spread Knowledge

One of the most practical ways of stimulating the interest of the fishing industry in developments in fishing boat design and in other improvements is to promote the interchange of experience, ideas and information between naval architects, marine engineers, boat builders and boat owners in various countries. FAO made a very successful start in this field in 1953 when the Organization held the first International Fishing Boat Congress with sessions at Paris, France, and Miami, Fla.

"As a result of that Congress," said Mr. Traung, "we did much to focus attention on hull design and to stimulate the practical interest of naval architects and fishing boat builders. We are now planning to hold a second World Fishing Boat Congress, this time at FAO's headquarters in Rome, April 5 to 10 next year. At this Congress we shall have a number of papers which will deal with the results of recent research on fishing boat design, construction and performance."

"The emphasis at this meeting will be on the performance of fishing boats, which certainly needs to be critically and objectively examined," he continued. "At present, neither builders nor owners, nor even the fishermen themselves, have reliable information on performance, and what they have—especially on speed—is mostly due to imagination. For example, fishermen will always readily claim that their boats sail faster than is the fact but will not carry out properly controlled trials to establish the true speed. Yet we must know this if we are to find out how to improve the performance of fishing boats."

"This is only one instance of many I could give but it is sufficient to illustrate the point. The Congress will focus attention on such problems and should lead to practical measures to improve the performance of fishing boats."



WHERE TO LOOK for the Greatest Developments In Commercial Fish Netting

Here's practical, money-saving advice: Go to your nearest supplier of *Barbour's* and *Gold Medal* Netting for your best buys in the new synthetic and cotton nettings and seine twines. They represent today's greatest developments in efficient, profit-making netting, are the products of America's first authority on commercial fish netting—the Linen Thread Company. You can count on their uniform strength and quality construction.

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GREAT LAKES

Herring Catches Continue To be Heavy

Duluth, Minn. commercial fishermen, as well as Cornucopia, Bayfield and Ashland, Wis. producers on Lake Superior were landing tons of lake herring last month. Great schools of herring concentrated in the western end of Lake Superior recently to carry on their natural spawning function. In Keweenaw Bay, fishing fleets from Grand Portage, Chassel and nearby anchorages were reportedly getting nice catches of lake herring in that area where good herring concentrations usually occur during early winter.

In the Whitefish Bay area of the big lake, Brimely, Sault Ste. Marine and some of the Canadian fishermen were making good hauls of herring. Netters resumed fishing for lake trout in Lake Superior last month, with first takes reportedly light.

In the Green Bay region, particularly in the northern part of the Bay, Marinette and Menominee and Bay de Noc fishermen were producing good catches of herring. Hauls of chub were also good, with nets often filled to straining proportions.

Commercial fishing on Lake Michigan was generally heavy last month with production of yellow perch and chub by Wisconsin, Illinois and Michigan producers in good commercial quantity. Many vessels are operating out of Milwaukee and several fish tugs are plying out of Waukegan and Chicago, Ill.

Carp have been taken in heavy quantity recently in Lake Huron, but late in October the major specie being taken was lake herring. Many of the Bayport fishermen were out for herring with fairly good success. In the northern part of the lake and in the Channel area, some whitefish were reportedly caught.

On Lake Erie, commercial fishing was generally light for the western regional fisherman, with fair commercial catches of carp, sheepshead, bullheads, and perch.

In the eastern end of the lake, commercial producers of whitefish and blue pike were showing up with fair takes of whitefish. Some of the fish were small but they were reportedly of good quality, and the market for these was very good.

Alewife Causes Concern

The increase in the alewife population in Lake Michigan and Lake Huron is causing some concern among Lakes fishermen. Four years ago no mention was made of the alewife in

Michigan statistical records. In 1957, 33,600 pounds of this so-called nuisance fish were taken from Lake Michigan and an additional 1,800 pounds from Lake Huron.

To date it has little commercial value and its alarming increase in Michigan's waters is causing considerable concern among the fishermen and conservationists. Not only is the fish a nuisance in the nets of the fishermen, but it seems to be taking the place of the valuable lake herring. As the alewife increases, the herring seems to decrease in almost the same proportion.

Trout Free of Lamprey For Three Years

Recent studies on the susceptibility of lake trout to sea lamprey have confirmed earlier opinions that young lake trout are relatively free of lamprey attack until they reach a length of about 17 inches, according to the Great Lakes Fishery Commission.

Commission biologists reported that hatchery trout planted showed a high rate of survival and excellent growth for the first three years after planting. However, after reaching 17 inches, they rapidly become vulnerable to sea lamprey attack and are destroyed before they have a chance to mature and spawn for the first time.

This, the commission said, would seem to indicate that no natural reproduction is possible until sea lamprey are controlled.

Studying Fish in Isle Royal Area

In the Isle Royal area of Lake Superior the motor vessel *Siscowet* of the Fish & Wildlife Service has been operating with gill nets with grade mesh sizes from 1" to 6" and with trawl to make studies of fish concentrations there.

One 15-minute trawl tow in Siskiwit Bay brought in about 150 small whitefish in water 110-115 feet deep. The only other fish caught were 12 slimy mudlivers.

Catches in gill nets varied with locations and depth. Three nets set north of Thompson's Island took 45 lake trout, 14 herring and 6 chubs. Four nets in Siskiwit Bay landed 146 chubs and 17 lake trout. Chubs were more abundant in the deepest net set at 78 fathoms.

Nine gill nets set south of Nott Island took 431 chubs and 3 lake trout. A gang of 20 nets set northeast of Gull Island were on an extremely uneven bottom. Depths varied in the set from 7 to 42 fathoms. This gang took 77 lake trout, 39 chubs, 11 herring and 7 burbot. Temperatures of water below 30 feet were consistently 39-40 degrees F.

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For high speed, heavy duty diesel engines

The 3900 Series Hydraulic Gears provide these outstanding features you want and need to get the finest performance from modern diesels in the 200 to 800 HP range.

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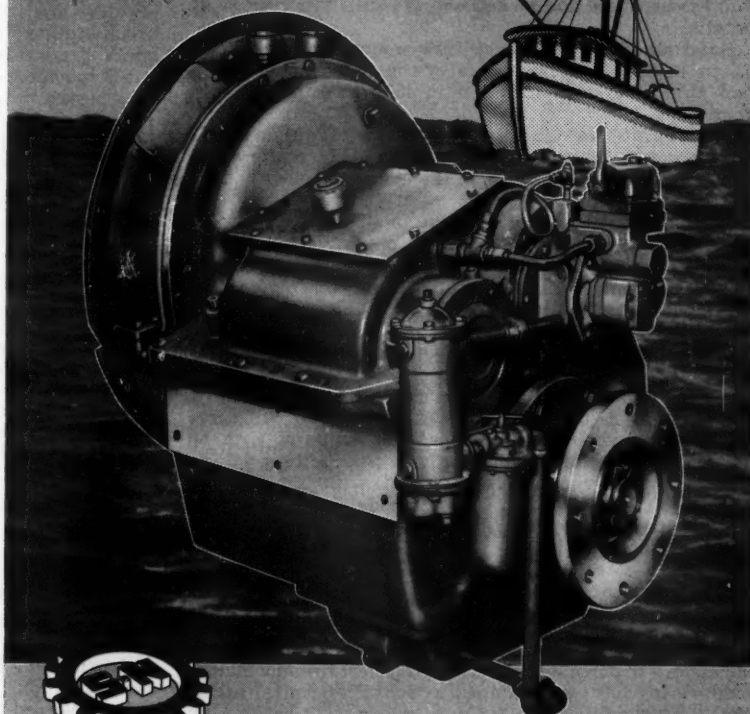
Rugged Construction—Assures long life and complete dependability. Built to take hard usage.

Outstanding Performance—Transmits full load and speed, ahead or astern. No loss of power due to dragging discs.

Additional Features—include low price per horsepower and the widest choice of reduction gear ratios.

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Transmission Engineers FOR OVER HALF A CENTURY

EQUIPMENT and SUPPLY NEWS

Evinrude Unveils 50th Anniversary Models

Evinrude Motors, Milwaukee, Wisc. is marking its Golden Anniversary with the introduction of nine new models for 1959. The new motors range from 3 to 50 hp. and are marked by the continuation of the 4-cylinder 50 hp. Vs introduced last year.

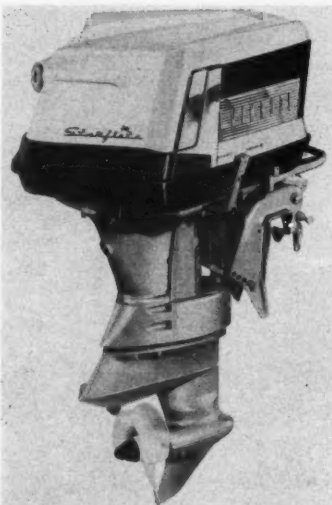
Evinrude's V motors have extended to the entire line, the concept of silent outboarding, with cylinders in balance to reduce vibration. The large motors, Starflite, Four Fifty, Lark, and Big Twin, have enclosed sound completely within a chamber which extends from hood to water line. Above the gear case, the exterior surfaces are mounted to the pivot bearing to form a self-contained shell in which the power head floats on rubber mounts. The exhaust tube and powerhead are sealed in a silencing nacelle.

Evinrude has introduced into motors ranging from 5.5 to 18 hp., a thermostatically controlled cooling system similar to that installed in its larger models last year.

The Starflite and Lark are equipped with a high-torque starter motor to draw less current, prolong battery life, and provide a positive start in the event of below normal battery condition.

A major safety feature applying to all models is a self-contained magneto system which is operative from within the engine itself and is non-dependent upon external electrical supply for starting or running the motor. The magneto system is used to eliminate stalling due to battery failure.

Motors in the 1959 line have form-fitted fibreglass covers locked tight into rubber sealed position. The Lightwin and Ducktwin models have aluminum covers due to the integral gas tank and weedless lower unit. All carry the 50th anniversary emblem, a gold sunburst with an "E" set in a ring of chrome. Fathom blue is the predominant color. Cover panels are gold with the balance fathom blue and white. Deluxe models are gray and white with trim of gold lurium and a jeweled effect of vacuum-plated gold.



Starflite, Evinrude Motor's 1959 50 hp. V motor, features new high torque starter, thermostatically controlled cooling.

New Fairbanks-Morse Consultant

Lewis A. Baier, retired chairman of the University of Michigan's department of Naval Architecture and Marine Engineering has been retained as consulting naval architect to Fairbanks-Morse & Co.

Baier is the author of "The Navigators Handbook", a member of the Society of Naval Architects and Marine Engineers, Institution of Naval Architecture in London, Great Lakes Research Institute, and other professional organizations. He will work with the Marine Engineering Division at the Fairbanks-Morse Beloit works.

Columbian Pre-shrunk Rope

Development of a new stabilized Stalong Rope, pre-shrunk by stabilization has been disclosed by the Columbian Rope Company of Auburn, N. Y. Made with a new Dupont Nylon the rope is claimed to be stronger than other nylon previously introduced and to weigh 28 percent less. The non-shrinkage feature is an exclusive patented Columbian process.

The new rope will be used for all hawsers of 4½" circumference or larger. It is reported to have a dry breaking strength of 82,800 pounds in 5½" circumference. In addition to its strength the new nylon has shown excellent durability.

Ordinary nylon may lose up to 10 percent of its length through wet shrinkage. Columbian's stabilization process is designed to keep the same length wet or dry. Stalong's plied yarn construction adds to the flexibility and ease of handling the rope. The new rope is also described as having nylon's characteristic resistance to abrasion, heat, light, mildew and rot.

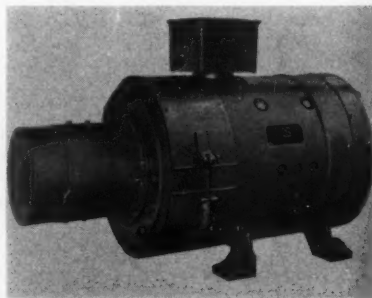
Safety Industries Power Supply Unit

The Electrical Division of Safety Industries, Inc., P. O. Box 904, New Haven, Conn., has developed a new 25-kw., 125-volt DC power supply system to provide a constant source of DC power. Incorporating generator with an exciter and semi-transistorized generator regulator, the system is designed to offer fine response to load fluctuations or rapid changes in generator speed for Diesel engine drive wherever rapid acceleration or deceleration is involved.

The generator makes liberal use of armature copper and low-loss iron in an effort to keep losses and heating to a minimum. The armature is Class B insulated, and the entire generator meets the temperature requirements of AIEE specifications. The generator armature is assembled on a sleeve independent of the shaft, which extends beyond the bearing at one end to carry the exciter armature. The exciter is a two-pole, two-brush type, ventilated by the main generator fan.

A reverse current relay is also provided to automatically connect and disconnect the generator from load or battery, in order to eliminate manually operated switches.

The new 25 kw., 125-volt DC power generating control system developed by Safety Industries, Inc., for drive by Diesel engines.



Universal Spare Parts Kit

The Universal Motor Co., Oshkosh, Wisc., has announced a new On-Board Spare Parts Kit. New packaging procedure is being used to obtain complete protection of parts even after long periods of storage. All parts are individually wrapped and sealed in vinyl containers to prevent the entrance of dirt and moisture. The transparent bags allow easy checking of contents, making it unnecessary to break the moisture seal to select the proper part.

The kit contains all the necessary parts for making emergency repairs to electrical, fuel and cooling systems. A pint can of matching engine enamel is also contained

in the kit for touching-up chipped paint areas to prevent rust. The entire kit is packed in a metal box with snap fastener and carrying handle. The kit is available for all engines in current production, as well as older models.

New Chrysler Appointment

As a further expansion of its sales organization, Chrysler Marine and Industrial Engine Division has named Lawrence E. Nelson vice-president, sales, replacing C. C. Williams who has been appointed divisional vice-president. He was formerly with Chrysler Motors Corporation, Chrysler Corporation as director-Marketing Staff and more recently as director-Vehicle Sales.

Nelson's new duties will include establishing an expanded Marine engine center and dealer network as well as developing and executing advertising and merchandising programs. He will be in charge of the entire sales organization and will direct establishment of service policies, parts distribution, sales programs and product information.

New Navigation Book

A new edition of "Marine Navigation" by Capt. P. V. H. Weems and Clarence V. Lee has been brought up to date to include advance electronic systems such as the Decca radio position-finding aid. Radar methods and Loran system are also described fully. The book for practical navigators is designed as a complete text for beginners and a reference guide for experienced marine navigators.

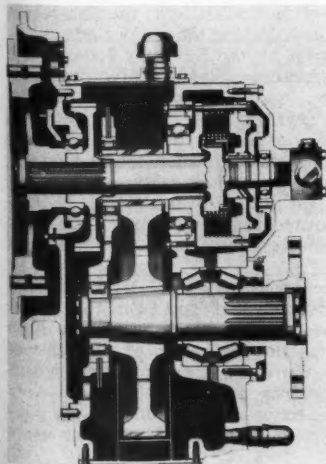
The manual divides navigation into four fields: piloting, dead reckoning, celestial, and electronic. In each, definitions and theoretical principles, equipment and instruments used, and the method's actual practice are detailed. "Marine Navigation" (\$7.50) is prepared by Weems System of Navigation at Annapolis, Md.

New Twin Disc Reduction Gear

Twin Disc Clutch Company, Racine, Wisconsin, has announced production of the Twin Disc MG-512 Marine reverse and reduction gear, a redesigned, heavier version of the Model MG-511.

The record of the MG-511 lead Twin Disc to redesign the gear to permit its application to new, larger engines. Basic changes incorporated in the MG-512 include the addition of a second row of rubber blocks to the driving ring and enlargement of the input shaft bearing.

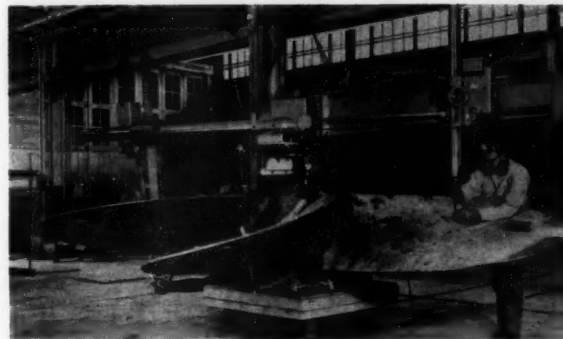
Advantages of the older model, retained in the MG-512, include dry flywheel housing to prevent oil transfer or leakage, double countershaft seals to eliminate oil leakage out or bilge leakage in, and mechanical come-home feature to permit forward rotation if the hydraulic system is rendered inoperative. Clutches can be removed for servicing without pulling gear from engine.



Cutaway view of the Twin Disc MG-512 marine reverse and reduction gear, showing double row of rubber blocks on driving ring and heavy duty input shaft bearing.



Officials of Columbian Bronze Corp. standing before the new Dynamic Balancing machine. L. to R. Paul Ducharme, plant manager; Columbian Foundry Division; William C. Thompson, chief engineer; O. B. Pinkney, vice president—manufacturing; Bernard N. Ames, president; Frank Kowack, works manager; and D. T. Abbott, vice president—sales and engineering.



Electric Pitchometer used by the Columbian Bronze Finishing Shop.

Columbian Bronze Propeller Finishing Shop

Facilities for finishing and repairing propellers to a degree of precision considered impossible on a production basis have been developed by Columbian Bronze Corporation, Freeport, N. Y. The facilities, described as a Commercial Propeller Finishing Shop, handle rough propeller castings ranging in diameters from 4 to 17 feet and weighing up to 15 tons.

Operations performed in the shop include layout and grinding of rough propeller castings, and finishing and balancing of both new and reconditioned propellers. Equipment in the new shop includes an electronic dynamic balancing machine and an electric pitchometer, both products of West Germany and considered proprietary facilities in the marine industry.

The balancing machine indicates the exact amount and location of unbalance in a propeller blade after grinding of the rough cast is complete. Polished propellers mounted on the machine are revolved at varying speeds up to 240 rpm. From electronic instrumentation, an operator determines how much metal must be removed from particular locations on the blade surface to effect dynamic balance. Time required for the entire operation has been reduced 70 percent from previous trial and error procedures.

The pitchometer locates points of reference automatically in the establishment of a layout on the rough casting. It is then used to drill each blade side at hundreds of points to predetermined depths. Grinding operations remove the excess metal establishing thickness and pitch dimensions determined by the pitchometer's calculations.

Other techniques employed by the new shop include carefully engineered template nests fitted to the individual propeller blades during grinding, to gage the degree of conformity to the required blade contour. Finishing of blade fillets also requires special templates, while final inspections employ both templates and pitchometer.



Largest All-Nylon Fishing Net in the world . . . A STARR NET



Now 3
years old
and still
breaking
all records!

"We've already caught 8,000 TONS of Tuna — 4 times as much as the nets formerly used!"

That's what Capt. Anton Misetich of the *ANTHONY M* claims for his STARR Nylon Net, reportedly the largest in the world.

Like Capt. Misetich, more fishermen now are using STARR Nylon Netting because it catches bigger sets and holds *all* the fish in a set.

Made from 100% DuPont Nylon, Starr Netting, light in weight yet super rugged, handles easier, lasts longer, wears better. It's fish for keeps with STARR Nylon — the big name in commercial fish netting today.

**STARR NETTING . . .
STAR PERFORMANCE**



A. M. STARR NET CO.
EAST HAMPTON, CONN. U.S.A.

Gulf States Fisheries Meeting

(Continued from page 7)

Miami, reported on the pink shrimp, saying that there are great variations in the catches of this species of shrimp, but eventually reliable data will be collected on the mortality and other factors.

The Estuarine Technical Coordinating Committee met formally on the 15th to discuss some of the problems confronting it in the inland salt waters of the five states. It was unanimously decided that the first step to be taken should be an assessment of the present knowledge of various estuaries. Much useful information has been published with regard to specific areas and marine forms, but there is much additional information available only to the individual agencies in the form of unpublished reports.

A second item to be undertaken is an atlas which would define the estuaries of the entire coast and attempt to show their relative importance. Information to be included would be surface area, depths, vegetative types, average hydrographic features, important fish and wildlife species utilizing the area, extent of usage for navigation, mineral development, use by industry as cooling water, process water, or as waste disposal, and finally the status of development programs in each area. The maps are to be prepared before the next Commission meeting.

Washington Fish Farms

(Continued from page 9)

side of the culvert controls the lagoon's water level. When the salmon are ready to be released, the gates open and the young salmon are swept through the culvert and down a gentle slope into Penn Cove. The steel-mesh-screen gates have several functions. They keep the salmon in, and hold out large chunks of debris and predators, while at the same time they allow food to wash into the lagoon for the salmon.

Pressey expects salmon to have high survival rate in the fish farms. "They should do better than under natural conditions because we eliminate predators and regulate water levels so that there will be no extremes such as floods or low water." He feels that the fish-farm product will not be a pampered salmon as "he forages for himself and develops almost as a wild fish instead of waiting in a hatchery for someone to hand-feed him. I think he will be well equipped to take care of himself after he leaves the fish farm."

Aqua-Clear Helps Retain Freshness of Catch

The Department of Fisheries of the German Government has discovered that by washing fish, in water containing .2 percent Aqua-Clear, and then packing them in ice that has been treated with Aqua-Clear, the fish retain their freshness and natural color for longer periods.

Aqua-Clear, manufactured by the Sudbury Laboratory, Sudbury, Mass., has long been used as a protective agent for ice-making machines, water tanks, pipelines, etc. Water is passed through crystals in a "feeder" and into the equipment for the purpose of retarding rust and corrosion. Rinse water passing through such treated equipment, as well as ice made in contact with Aqua-Clear, showed unusual properties in the preservation of fish, compared to water from untreated equipment. Tests were run by the German Fisheries Department to find the reason.

They found that most ocean fish accumulate, in the skin and outside flesh, a small amount of iron from the water. When taken from the water and exposed to air the flesh of the fish darkened due to the formation of particles of iron oxide. In Aqua-Clear, there is a chelating agent which is attracted by the minute iron particles and completely surrounds them so that the oxygen is shut off and the particles can not form iron oxide, darken the skin, or preserve the fish.

Admiral
Agatha
America
Anna C
Ann &
Annie
Anthony
Atlantic
Ave M
Blue W
Bonav
Bonnie
Bonnie
Bonnie
Cape C
Carlo
Cigar
Clinton
Clipp
Colum
Courie
Curley
Dawn
Dolph
Doris
Eagle
Eddie
Edith
Emily
Estrel
Eva M
Eva II
Evelin
Evelyn
Falcon
Flow
Franc
Frank
Gaeta
Giac
Golde
Golde
Holy
Holy
Ida &
Imma
Irma
Jackie
Jacks
J. B.
Jenni
Josep
Josep
Josie
Judith
King
Arno
Bern
Carl
Carol
Curle
Daun
Doro
Drift
Falcon
Fami
Ame
Aver
Bette
Carl
Caro
Conn
Fair
Jane
Lt. T
NOV

BOAT CATCHES

For Month of October

Hailing fares. Figure after name indicates number of trips.

GLOUCESTER (Mass.)

Acme (11)	109,000	Lady of Good Voyage (2)	50,000
Admiral (3)	64,500	Lady of the Rosary (1)	46,000
Agatha (3)	223,000	Linda B. (9)	33,500
Agatha & Patricia (3)	157,000	Little Flower (3)	107,000
American Eagle (7)	180,000	Little Joe (4)	38,000
Andrea G. (1)	77,000	Little Ranger (1)	25,500
Anna Guarino (8)	43,500		
Ann & Marie (9)	38,000	Madonna DiTrapani (4)	56,500
Annie (12)	49,000	Malolo (2)	91,000
Anthony & Josephine (11)	117,000	Manuel P. Domingoes (1)	150,000
Atlantic (3)	110,500	Margaret Marie (8)	82,000
Ave Maria (4)	52,600	Marianna II (2)	31,000
		Mary (11)	91,000
Blue Waters (1)	180,000	Mary Ann (6)	258,000
Bonaventure (3)	143,500	Mary Jane (1)	150,000
Bonnie Bill (2)	200,500	Metacomet (3)	85,000
Bonnie Billow (1)	190,000	Morning Star (6)	196,000
Bonnie Breaker (1)	190,000		
		Nancy & Maria (8)	92,500
Cape Cod (2)	26,500	Natale III (7)	283,000
Carlo & Vince (7)	124,500	North Sea (1)	165,000
Cigar Joe (6)	53,000	Nova Luna (1)	3,000
Clinton (9)	75,500		
Clipper (1)	150,000	Ocean Spray (2)	78,000
Columbia (1)	18,000	Ocean Wave (1)	65,000
Courier (2)	140,000	Olympia (8)	324,000
Curlew (1)	165,000	Our Lady of Fatima (2)	380,000
		Our Lady of Tears (12)	61,500
Dawn (5)	24,500		
Dolphin (1)	70,000	P. K. Hunt (2)	130,000
Doris F. Amero (4)	249,500	Prosperity (9)	81,000
		Puritan (1)	45,000
Eagle (3)	287,000	Rose & Lucy (7)	252,500
Eddie & Lulu M. (13)	45,000	Rosemarie (7)	303,500
Edith L. Boudreau (2)	35,000	Rosie & Gracie (7)	223,000
Emily H. Brown (2)	330,000		
Estrella (1)	220,000	St. Angelo (1)	35,000
Eva M. Martin (2)	2,500	St. Anna Maria (6)	254,500
Eva II (8)	29,500	St. Cabrini (7)	198,500
Evelina M. Goulart (1)	20,000	St. John (6)	25,000
Evelyn C. Brown (1)	275,000	St. Joseph (3)	102,000
Falcon (4)	48,000	St. Mary (8)	244,000
Flow (2)	480,000	St. Nicholas (1)	165,000
Frances R. (7)	245,500	St. Peter (6)	201,000
Frankie & Jeanne (5)	13,500	St. Peter III (7)	194,500
		St. Providenza (11)	84,500
Gaetano S. (3)	125,000	St. Rosalie (2)	13,000
Giacoma (11)	40,000	St. Stephen (11)	61,500
Golden Dawn (5)	48,000	St. Terese (7)	287,500
Golden Eagle (1)	120,000	St. Victoria (7)	515,200
		Salvatore & Grace (7)	272,000
Holy Family (1)	35,000	Santa Lucia (5)	17,000
Holy Name (8)	152,000	Santa Maria (1)	6,000
		Sea Queen (1)	30,000
Ida & Joseph (7)	332,000	Sebastiana C. (6)	270,500
Immaculate Conception (4)	132,000	Serafina N. (3)	83,000
		Serafina II (8)	251,500
Irma Virginia (10)	55,000	Sunlight (1)	170,000
Jackie B. (6)	295,000	Teresa R. (1)	60,000
Jackson & Arthur (8)	36,000	Theresa M. Boudreau (2)	420,000
J. B. N. (1)	50,000	Tina B. (2)	34,000
Jennie & Lucia (2)	22,000	Tipsey Parson (11)	18,500
Joseph S. Mattos (1)	120,000		
Josephine P. II (1)	1,000	Virginia (1)	21,000
Josie II (7)	32,500	Virginia Ann (8)	158,000
Judith Lee Rose (1)	260,000		
Kingfisher (2)	420,000	White Owl (11)	22,500
		Wild Duck (1)	140,000

WOODS HOLE (Mass.)

Arnold (5)	33,700	Jenny (1)	9,800
Bernice (4)	28,000	Louis Thebaud (1)	4,300
Carl Henry (1)	5,700	Lynn (2)	7,700
Carole Ann (3)	28,100	Madeline (4)	32,000
Curlew (5)	19,100	Morning Star (2)	1,800
Dauntless (1)	11,800	Roann (3)	82,100
Dorothy & Mary (1)	18,700	Sammy B. (1)	100
Driftwood (4)	5,200	Southern Cross (2)	8,100
Falcon (1)	1,800	Viking (1)	500
Famiglia (4)	35,800	Winifred M. (3)	15,600

STONINGTON (Conn.)

America (3)	7,300	Little Chief (1)	1,600
Averio (11)	7,800	Luann (4)	13,600
Bette Ann (14)	13,400	Marise (14)	12,800
Carl J. (14)	30,300	Old Mystic (12)	21,900
Carolyn & Gary (14)	17,500	Rita (5)	16,500
Connie M. (12)	11,800	Theresa (4)	8,300
Fairweather (17)	39,500	Who Cares (3)	1,000
Jane Dore (13)	10,100	William B. (17)	37,600
Lt. Thos. Minor (12)	19,700		



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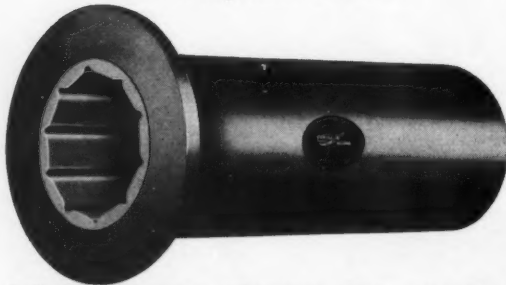
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NEW BEDFORD (Mass.)

Adventurer (4)	62,500	Lynn (1)	13,500
Althea (3)	96,500	Major J. Casey (3)	104,000
Anastasia E. (5)	104,000	Malvina B. (2)	59,200
Annie Louise (3)	35,400	Maria Julia (1)	12,000
Annie M. Jackson (4)	134,900	Marie & Katherine (3)	71,300
Austin W. (2)	67,500	Mary & Gloria (1)	22,500
Barbara M. (3)	66,000	Mary E. D'Eon (4)	60,500
Bonnie Bill (2)	10,000	Mary J. Landry (3)	89,400
Cap'n Bill II (3)	151,900	Mary Tapper (4)	133,900
Captain Deebold (3)	45,800	Midway (3)	95,700
Carl Henry (2)	63,000	Mildred & Myra (3)	49,000
Carol & Estelle (2)	61,100	Millie (2)	47,300
Catherine & Mary (4)	143,700	Miriam A. (4)	125,500
Charles E. Beckman (4)	58,900	Molly & Jane (3)	57,900
Christina J. (2)	50,000	Monte Carlo (5)	91,000
Christine & Dan (2)	40,200	New England (2)	47,900
Comber (2)	44,000	North Cape (1)	31,000
Connie F. (2)	87,000	North Sea (3)	89,500
Curlew (1)	6,000	Olive M. Williams (2)	54,000
Eugene H. (4)	115,800	Pauline H. (3)	196,300
Falcon (3)	111,400	Phyllis J. (2)	25,600
Falcon (N.Y.) (2)	30,700	Rita (4)	91,800
Friendship (1)	24,100	Roberta Anne (2)	65,500
Gannet (2)	96,500	Rosalie F. (2)	66,500
Growler (2)	100,400	Rosemarie V. (3)	71,800
Harmony (2)	43,800	Rush (4)	126,900
Hope II (3)	117,000	Ruth & Nancy (2)	49,400
Invader (1)	44,000	Sandra Jean (1)	23,000
Ivanhoe (2)	69,300	Sea Rambler (2)	68,000
Jacintha (3)	134,000	Shannon (2)	70,000
Janet & Jean (3)	129,600	Sharon Louise (2)	32,700
Jennie (2)	27,300	Smilyn (1)	32,000
John G. Murley (3)	128,600	Solveig J. (2)	87,000
Julia DaCruz (2)	85,800	Stanley B. Butler (2)	82,000
Kelbarsam (2)	49,200	Sunbeam (4)	152,900
Laura A. II (2)	63,200	Susie O. Carver (5)	89,500
Lorine III (2)	69,500	Teresa & Jean (2)	59,500
Louis A. Thebaud (2)	51,000	Two Brothers (3)	39,600
Luann (3)	71,500	Venture I (2)	78,000
Lubenray (3)	100,500	Viking (2)	83,000
		Whaler (2)	86,500

Scallop Landings (Lbs.)

Abram H. (2)	19,000	Laura A. (2)	22,300
Adele K. (1)	9,500	Lauren Fay (2)	18,500
Agda W. (1)	3,500	Linus S. Eldridge (2)	14,700
Aloha (2)	21,300	Louise (2)	22,400
Alpar (1)	6,000	Malene & Marie (1)	11,000
Amelia (1)	11,000	Marmax (1)	4,000
Babe Sears (3)	12,500	Mary Ann (2)	22,000
Baitic (2)	22,000	Mary Jane (1)	9,500
B. Estelle Burke (2)	17,500	Mary J. Hayes (2)	22,000
Bobby & Harvey (2)	16,500	Moonlight (2)	21,000
Brant (2)	21,000	Nancy Jane (1)	11,000
Bright Star (2)	22,000	New Bedford (2)	22,400
Camden (2)	20,000	Newfoundland (2)	21,000
Catherine B. (2)	16,500	Noreen (2)	21,700
Catherine C. (2)	22,000	Pearl Harbor (3)	23,300
Charles S. Ashley (2)	22,000	Pelican (3)	22,300
Clipper (1)	11,000	Polaris (2)	20,000
Dartmouth (1)	3,700	Porpoise (2)	8,500
Debbie-Jo-Ann (2)	18,500	Ruth Lea (2)	22,000
Edgartown (2)	22,400	Ruth Moses (2)	19,500
Eleanor & Elsie (2)	19,000	Sandra Jane (2)	22,000
Elizabeth N. (2)	12,400	Sea Ranger (1)	10,500
Enice-Lillian (1)	10,600	Sippican (3)	26,800
Fairhaven (2)	22,000	Snoopy (2)	22,000
Flamingo (2)	22,000	Stanley M. Fisher (2)	21,000
Fleetwing (2)	19,700	Stephen R. (2)	16,500
Florence B. (2)	22,000	Ursula M. Norton (2)	22,200
Geraldine (3)	35,300	Vivian Fay (1)	11,000
Hilda Garston (2)	22,200	Wamsutta (2)	22,000
Jerry & Jimmy (2)	20,300	Whaling City (2)	19,000
Josephine & Mary (2)	22,000		
Kingfisher (2)	22,000		

ROCKLAND (Me.)

Arabo (2)	200,000	Myrt II (1)	4,000
Elln B. (2)	56,000	Ocean (2)	600,000
Flo (2)	52,000	Rhode Island (2)	27,000
Flow (1)	50,500	Squall (1)	280,000
Helen Mae II (4)	26,000	Storm (1)	300,000
John J. Nagle (2)	147,000	Surf (1)	280,000
Little Growler (2)	43,000	Tide (2)	450,000
Mabel Susan (5)	30,700	Wave (2)	560,000
Margaret Jean (1)	11,000		

Scallop Landings (Lbs.)

Pocahontas (1)	11,000
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NATIONAL FISHERMAN - NOVEMBER, 1958

BOSTON (Mass.)

15,500	Agatha & Patricia (1)	31,600	Mother Frances (2)	59,200
104,000	Alphonso (3)	23,200	Nancy B. (1)	36,900
59,200	Angle & Florence (2)	14,700	Nautilus (2)	79,400
12,000	Arlington (3)	214,700	New Star (3)	126,200
71,300	Atlantic (2)	137,700	Notre Dame (2)	45,800
22,500	Baby Rose (3)	172,500	Ocean Wave (1)	20,700
60,500	Bay (2)	105,800	Ohio (3)	156,500
59,400	Bonnie (3)	235,400	Olympia LaRosa (1)	40,200
133,900	Brighton (3)	117,400	Pam Ann (3)	152,200
95,700	Buzz & Billy (3)	84,300	Patty Jean (2)	170,300
49,000	Cambridge (3)	276,500	Phantom (3)	238,500
125,500	Carsara (2)	39,300	Phillip & Grace (2)	135,200
57,900	Carrelia Maria (2)	18,300	Pilgrim (1)	19,800
91,000	Carmen & Vince (3)	103,400	Plymouth (2)	128,900
47,900	Charlotte M. (3)	120,900	Princess (2)	21,400
31,000	Columbia (2)	90,300	Racer (2)	171,000
89,500	Comet (2)	79,100	Raymonde (3)	126,100
54,000	C. R. & M. (1)	25,700	Red Jacket (2)	215,000
196,300	Dolphin (2)	44,500	Regina Maria (3)	170,600
25,600	Elizabeth B. (2)	110,300	Rosa B. (2)	112,500
91,800	Ethelena (4)	136,600	Rosie (6)	96,600
65,500	Flying Cloud (2)	269,200	Rush (2)	121,900
66,500	Four (2)	94,500	St. Angelo (1)	25,800
71,800	Geraldine & Phyllis (3)	87,800	St. Joseph (2)	54,600
126,900	Hazel B. (2)	84,900	St. Marco (2)	70,300
49,400	Holy Family (1)	40,900	St. Rosalie (1)	52,500
23,000	Jane B. (2)	91,500	Salvatore (1)	1,600
68,000	J. B. Junior (3)	160,200	Santa Maria (1)	29,000
32,700	Jeanne D'Arc (2)	48,300	Santa Rita II (1)	12,200
32,000	Jennie & Lucia (1)	23,200	Sea Queen (1)	16,400
87,000	Josephine P. II (3)	44,100	Star of the Sea (N.B.) (2)	54,700
152,900	Leonard & Nancy (2)	42,200	Sunlight (1)	41,700
89,500	Leonardo (1)	7,000	Swallow (2)	71,700
59,500	Magellan (3)	77,400	Terra Nova (3)	167,200
39,600	Manuel F. Roderick (3)	87,700	Texas (3)	137,400
78,000	Maria Del S. (3)	16,000	Thomas D. (3)	77,700
83,000	Mary & Joan (2)	53,400	Thomas Whalen (3)	172,600
86,500	Mary Rose (3)	161,200	Villanova (2)	60,000
	M. C. Ballard (2)	83,000	Vincie N. (5)	119,400
	Michael G. (2)	23,300	Weymouth (2)	120,400
	Michigan (3)	190,300	Wild Duck (1)	49,300
	Minnie (2)	190,800	Winchester (3)	248,300
			Wisconsin (3)	236,700

SEATTLE (Halibut Fleet Fishery)

11,000	Agnes O. (2)	33,000	Merit (2)	6,000
4,000	Albatross (2)	31,500	Mermald (2)	35,000
22,500	B. C. Clipper (1)	75,000	Nanna (2)	49,100
9,500	California (2)	32,000	Nordic (1)	45,000
21,000	Ethel S. (3)	52,700	Oceanus (1)	20,000
11,000	Eureka (1)	7,400	Orbit (2)	30,700
22,400	Flying Tiger (1)	15,000	Pacific (1)	48,000
21,000	Inez M. (1)	21,500	Presho (1)	10,400
21,700	J. B. (1)	13,600	Sea Bird (2)	33,400
23,300	Kaare II (1)	40,000	Swift II (2)	21,300
22,300	Lloyd (2)	36,000	Sylvia (2)	58,500
20,000	Maddock (2)	30,000	Thor (1)	56,000
8,500				

PORTLAND (Me.)

22,000	Agnes & Elizabeth (2)	48,000	Quincy (2)	133,000
10,500	Alice M. Doughty II (6)	151,000	Resolute (1)	40,000
26,800	Andarte (2)	130,000	St. George (1)	185,000
22,000	Dorothy & Ethel II (1)	2,000	Sea Hawk (1)	120,000
11,000	Elinor & Jean (3)	33,500	Theresa R. (1)	105,000
	Gulf Stream (1)	210,000	Vagabond (1)	60,000
22,000	Lawrence Scola (2)	3,200	Vandal (3)	170,000
19,000	Lawson (1)	45,000	Voyager (2)	86,000
	Mary & Jennie (3)	18,000	Wawenock (2)	425,000
	Median (1)	160,000	Winthrop (3)	316,000
	Nancy B. (2)	34,000		

NEW YORK

4,000	Andrea G. (1)	43,200	North Cape (2)	31,200
00,000	Dolphin (1)	30,000	Two Brothers (2)	32,800
27,000	Evelina M. Goulart (1)	42,000	Tina B. (1)	47,700

Scallop Landings (Lbs.)

00,000	Carol-Jack (2)	20,000	Felicia (1)	11,000
80,000	Clipper (1)	5,300	Karina T. (2)	14,000
00,000	Barbara & Gail (1)	10,500	Manchonoch (1)	5,500
80,000	Beatrice & Ida (1)	11,000	Muskegon (1)	7,600
50,000	David A. (1)	11,000	Richard Lance (1)	5,700
60,000	Enterprise (1)	11,000		



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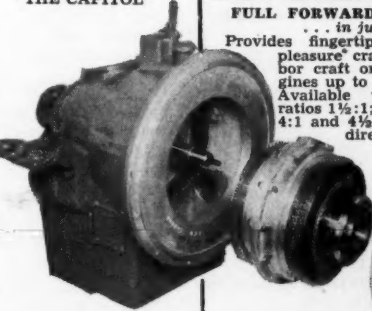
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Federal Propellers, Grand Rapids, Mich.

Ferguson Propeller and Reconditioning Co., 1132 Clinton St., Hoboken, N. J.

Hyde Windlass Co., Bath, Maine.

Michigan Wheel Co., Grand Rapids, Mich.

PROPELLER RECONDITIONING

Columbian Bronze Corp., Freeport, N. Y.

Ferguson Propeller and Reconditioning Co., 1132 Clinton St., Hoboken, N. J.

Haskell & Hall, Inc., 36 Webb St., Salem, Mass.

PROPELLER SHAFTS

The American Brass Co., Waterbury 20, Conn.

The International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.

PUMPS

Jabco Pump Co., 2031 N. Lincoln St., Burbank, Calif.

Sudbury Laboratory, South Sudbury, Mass.

RADAR

Bendix Aviation Corp., Pacific Div., 475 Fifth Ave., New York 17, N. Y.

Decca Radar Inc., 539 West 25th St., New York 1, N. Y.

Edo Corporation, College Point, L. I., N. Y.

Lavoie Laboratories, Inc., Morganville 16, N. J.

Radiomarine Products, a Division of RCA, 75 Varick St., New York 13, N. Y.

RADIO TELEPHONES

Applied Electronics Co., Inc., 213 E. Grand Ave., South San Francisco, Calif.
Bludworth Marine, 92 Gold St., New York 38, N. Y.
Hudson American, 29-01 Borden Ave., Long Island City 1, N. Y.
Kear Engineering Corp., Palo Alto, Calif.
Radiomarine Products, a Division of RCA, 75 Varick St., New York 13, N. Y.

RANGES—Galley

"Shipmate"—Shipmate Stove Division, Souderton, Pa.
"Shipmate" and "Webbperfection" — Elisha Webb & Son Co., 136 S. Front St., Philadelphia 6, Pa.
Harry C. Weiskittel Co., Inc., 4901 Pulaski Highway, Baltimore 24, Md.

REDUCTION GEARS

Auto Engine Works, Inc., 333 (A) North Hamline Ave., St. Paul 4, Minn.
Snow-Nabstedt Gear Corp., Welton St., Hamden, Conn.
Twin Disc Clutch Co., 1341 Racine St., Racine, Wis.
The Walter Machine Co., Inc., 84 Cambridge Ave., Jersey City 7, N. J.
Western Gear Corp., P. O. Box 126, Belmont, Calif.

RUST PREVENTIVES

Sudbury Laboratory, South Sudbury, Mass.

SEARCHLIGHTS

The Carlisle & Finch Co., 4562 W. Mitchell Ave., Cincinnati 32, Ohio

SHIPBUILDERS

Blount Marine Corp., Warren, Rhode Island.
Diesel Engine Sales Inc., St. Augustine, Fla.
Diesel Engine Sales of Ft. Myers, Fla., Inc., 2909 Frierson, Ft. Myers, Fla.
Harvey F. Gamage, So. Bristol, Maine.
General Marine Boatyard, Inc., Fort Myers Beach, Fla.
Gladding-Hearn Shipbuilding Corp., 1 Riverside Ave., Somerset, Mass.
Morehead City Shipbuilding Corp., Morehead City, N. C.

SILENCERS

The Maxim Silencer Co., 126 Homestead Ave., Hartford, Conn.

STARTING FLUID

Spray Products Corp., P. O. Box 584, Camden 1, N. J.

STEERING GEAR

Metal Marine Pilot, 342 Golden Gate Ave., Tacoma, Wash.

STERN BEARINGS

Byron Jackson Tools, Inc. 1900 E. 65th St., Los Angeles 1, Calif.
"Goodrich Cutless": Lucian Q. Moffitt, Inc., Akron 8, Ohio.

TRAWL CABLE METERS

Olympic Instrument Laboratories, Vashon, Wash.

TWINE

Brownell & Co., Inc., Moodus, Conn.
Columbian Rope Co., Auburn, N. Y.

V-BELTS

Flexible Steel Lacing Co., 4683 Lexington St., Chicago 44, Ill.

VOLTAGE REGULATORS

Safety Industries, Inc., Box 904, New Haven 4, Conn.

WINCHES

Hancock Marine, 1567 No. Main St., Fall River, Mass.
Hathaway Machinery Co., Inc., New Bedford, Mass.
Stroudsburg Engine Works, 62 North 3rd St., Stroudsburg, Penn.

WIRE ROPE

American Steel & Wire Division, United States Steel, Rockefeller Bldg., 614 Superior Ave., Cleveland 13, Ohio.
Hackensack Cable Corp., 110 Orchard St., Hackensack, N. J.
John A. Roebling's Sons Co., Trenton 2, N. J.
Wickwire Spencer Steel Division of The Colorado Fuel & Iron Corp., Palmer, Mass.

FOREIGN BAILINGS

SAVINGS IN ICE COSTS on trawlers as much as 60 percent can be attained by the introduction of a forced draught of refrigerated air into the holds. These are claims of a French company specializing in the installation of refrigerated holds in fishing vessels, based on results obtained by trawlers fitted by them.

Refrigerated air is forced by a powerful fan into the space between the outside of the hold and the walls of the compartments. It is forced in turn, through vents at the top of each compartment, and eventually to the opposite side of the hold, where it is led back to the refrigeration plant.

The cold air forced through every part of the hold keeps the fish at a constant temperature throughout. Refrigerated air does not dispense with ice in the hold but reduces its melting point to permit saving and keeps the temperature always below freezing.

SMALL FISH MEAL PLANTS have been developed by a British firm sufficiently compacted to be installed aboard ship. Entirely self-contained, the plants are designed for the production of meal and oil from fish, fish offal, and shellfish and have their own power plants. The 60 hp. gas turbine's exhaust gases provide heat for cooking and drying. The standard unit has a capacity up to 2,000 pounds.

BLUE AND GREEN LIGHTS catch most shellfish, Japanese find. Tests were made with a group of 3 nets, the center having a lamp situated at its base to throw light towards the mouth. Plankton and small fry were immediately attracted by the light and shellfish within a minute.

Further tests were conducted in a salt-water lake in order to note the conduct of the shellfish more closely. When the light was switched off the shellfish quickly dispersed and returned when lit again.

A long line of lamps was dragged along the bottom at a speed sensibly slower than the nets. The fish followed the light until they entered the trap, in every case. The color of the light is believed important, although opinion differs as to whether blue or green is better.

DETACHABLE COD ENDS have been developed by the French. Cod ends are attached to the body of the net by a line running through a double row of rings.

At the end of a haul the end is detached, to be left in the sea marked by two buoys.

The mothership is advised of the location by radio, and picks up the cod end. A supply of spare ends is carried on each trawler.

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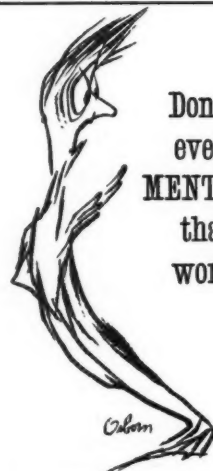
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